LEICA DIGITAL–MODUL–R

Instructions

2005.09.06

www.54gg.com

Illustrations inside front and rear covers

Foreword

We wish you a great deal of enjoyment and success using your new LEICA DIGITAL-MODUL-R. It allows you to use the quality and performance of your LEICA R8/R9 and Leica R lenses for digital photography at any time.

Switching between the two systems is extremely simple and there is no change in the handling of your existing items of equipment.

The user interface for the specific digital settings is just as logically and ergonomically structured as on the Leica R itself.

In order to be able to use the full capabilities of your LEICA DIGITAL-MODUL-R correctly, you should read this manual first.

This manual has been printed on 100% chlorine free bleached paper. The complex manufacturing process eases the burden on the water system and thus helps to protect our environment.

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

FCC Note: (U.S. only)

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna.
• Increase the separation between the equipment and receiver.
• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
• Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:

To assure continued compliance, follow the attached installation instructions and use only shielded interface cables with ferrite core when connecting to computer or peripheral devices.
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.

Trade Name:	LEICA
Model No.:	DIGITAL-MODUL-R
Responsible party/	
Support contact:	Leica Camera Inc.
	156 Ludlow Avenue
	Northvale, New Jersey 07647
	Tel.: +12017679608
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This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This Class B digital apparatus complies with Canadian ICES-003

LEICA DIGITAL-MODUL-R

FC Tested To Comply With FCC Standards

FOR HOME OR OFFICE USE

Table of Contents

Warning messages

- You should use exclusively the recommended accessories to prevent faults, short circuits or electric shock.
- Do not expose the unit to moisture or rain.
- Do not attempt to remove parts of the housing (coverings); specialist repairs can only be carried out in authorized service centers.

Notes:
- Some components of this unit contain low quantities of mercury or lead. Disposal of these components may be subject to special environmental protection rules in your country. For information on proper disposal or recycling, please contact the relevant authorities or a representative of the suppliers and manufacturers of electronic products. (http://www.eiae.org)
- Please ensure that you observe copyright laws. The recording and publication of pre-recorded media such as tapes, CDs or other published or broadcast material may contravene copyright laws.

- This also applies to all of the software supplied.
- The SD logo is a registered trademark.
- Other names, company or product names referred to in this manual are trademarks or registered trademarks of the relevant companies.

Items supplied

Before using your LEICA DIGITAL-MODUL-R for the first time, check that the accessories supplied are complete.

A. Focusing screen inc. tool for changing
B. Slider for removing the camera back
C. Digital back with
    a. Protective cover for sensor with
    b. Unlocking slider and
    c. Unlocking rocker
D. Power unit with
    a. Grip strap
E. Battery
F. Charger with
    a. 3 interchangeable plugs for different mains
       outlet systems
    b. Car charging lead
G. 512 MB SD memory card (in antistatic case)
H. FireWire cable
I. FireWire adapter
J. Adobe® Photoshop® Elements® 3 CD

Designation of parts

Digital back

Front view
(with protective cover removed)

1.1 Lower, rigid joint pin for securing in camera

1.2 Upper, moving joint pin for securing in camera

1.3 Sensor

1.4 Locking catch

1.5 Contact strip for connection with camera housing

Rear view

1.6 Button for displaying image data during picture review (**INFO**)

1.7 Button for selecting delete protection function (**PROTECT**)

1.8 Cover over FireWire socket

1.9 Button for selecting delete function (**DELETE**)

1.10 Button for activating (continuous) review mode (**PLAY**)

1.11 Monitor

1.12 Button for activating and deactivating menu control (**MENU**)

1.13 Setting ring for navigation in menus/setting the selected menu items/functions, scrolling in the memory, and for enlarging/reducing the pictures viewed

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1.15 Button to switch off or confirm input (**OK/OFF**)

1.16 Flap over memory card slot

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1.18 Speaker

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1.21 Data panel

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1.39 Contacts for battery

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1.46 Socket for mains unit and remote control with
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1.48 Green (POWER) LED to indicate mains
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1.49 2-pin socket for car charging cable

1.50 Battery connecting cable with 3-pin plug

1.51 Unlocking slider for

1.52 Interchangeable mains plugs (Euro/GB/USA,JP)

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a. 2-pin plug for charger and
b. Plug for cigarette lighter

Battery

1.54 Guide

1.55 Socket for charging plug

1.56 Contacts

Mains adapter

1.57 Unit-specific camera connecting cable with
a. 8-pin connector

1.58 Socket for mains cable

1.60 LED to indicate mains connection

1.59 Mains cable (2 supplied, 1x with European plug,
1x with JP/USA plug) with
a. 2-pin device connector
b. Mains plug

The displays
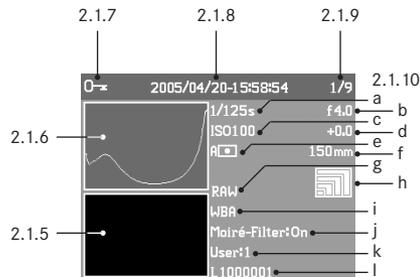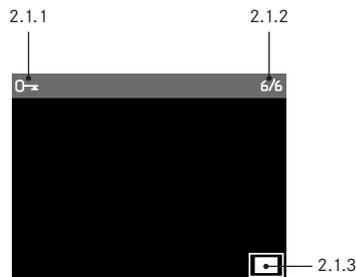
2.1 On the monitor

In normal review mode

2.1.1 Delete protection symbol
(only if set)

2.1.2 Picture number/total number of available pictures
(not with enlarged view)

2.1.3 Enlargement level/position of trimmed area shown
(schematic, for enlarged view only)

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(only with reduced viewing of 4 or 9 pictures)

Review with supplementary information (INFO)

2.1.5 Picture

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a. Luminance (brightness)
b. Red/green/blue
(separate display of individual colors)

2.1.7 Delete protection symbol
(only if set)

2.1.8 Date/time

2.1.9 Picture number/total number of available pictures

2.1.10 Picture information
a. Shutter speed
b. Aperture[1]
c. Sensitivity
d. Exposure compensation
e. Exposure measuring method
f. Focal length[1, 2]
g. Compression/file format
h. Resolution
i. White balance
j. Moiré filter setting
k. User profile
l. Folder number/file name

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[1] Most lenses equipped with ROM, including the EXTENDER-R 2x 11 269 (see camera and lens instructions) provide the required information. With lenses and extenders not equipped with ROM, this information is not displayed.

[2] On zoom lenses equipped with ROM, the information is graduated, on the Vario-Elmar-R 4/80–200 up to a maximum of 180 mm. In two cases (Apo-Vario-Elmarit-R 2.8/70–180 and Vario-Elmar-R 4.2/105–280), only the initial focal length is displayed.
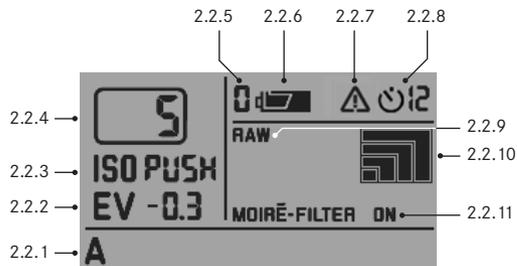
2.2 On the data panel

2.2.1 White balance
  a. **A** for automatic setting[1]
  b. ☼ for incandescent lamp light
  c. ☲ for fluorescent tubes
  d. ☀ for sunlight
  e. ⚡ for flash light
  f. ☁ for light cloud, haze etc.
  g. ⌂ for cast shadows
  h. **M** (Example) for manual setting by measurement
  i. **5000K** (Example) Directly adjustable color temperature value

2.2.2 Exposure compensation
(±3EV in 0.5 EV steps, to be set on camera)

2.2.3 Sensitivity
  a. **ISO 100**[1]
  b. **ISO 200**
  c. **ISO 400**
  d. **ISO 800**
  e. **ISO PUSH** (Higher sensitivity, corresponds to ISO 1600, only accessible via menu control, 2.2.7 also appears)

2.2.4 Remaining number of pictures

2.2.5 Selected user profile
(only if selected, includes functions 2.2.1/.3/.8/.9/.10 and menu settings)
  a. No display: Current setting(s) do not correspond to a stored user profile[1]
  b. **0** Factory setting (cannot be changed)
  c. **1** 1st stored user profile
  d. **2** 2nd stored user profile
  e. **3** 3rd stored user profile

2.2.6 Battery charge level
  a. ▭ Fully charged
  b. ▭ Partially discharged
  c. ▭ Flat

2.2.7 Indication for **ISO PUSH**
(only in conjunction with 2.2.3e)

2.2.8 Self timer activated/running
(flashes during delay time)
  a. ⏱2 2 seconds delay
  b. ⏱12 12 seconds delay

2.2.9 Resolution
  a. ▦ (3872 x 2576)[1]
  b. ▦ (2896 x 1920)
  c. ▦ (1920 x 1280)
  d. ▦ (1280 x848)

2.2.10 Compression/file format
  a. **RAW**[1]
  b. **TIFF**
  c. **JPEG FINE**
  d. **JPEG BASIC**

2.2.11 Moiré filter setting

[1] Factory default settings

The menu items

3.1	**User Profile**	User/application specific profile
3.2	**Sharpness**	Of the picture
3.3	**Color Saturation**	Of the picture
3.4	**Contrast**	Of the picture
3.5	**ISO Push**	Increase in highest adjustable ISO Sensitivity
3.6	**Color Management**	Working color space
3.7	**Resize**	Reduce resolution after recording
3.8	**Picture Numbering**	
3.9	**Auto Review**	Automatic review of last picture
3.10	**Histogram**	Graphic to indicate brightness distribution

3.11	**Monitor Contrast**	
3.12	**Monitor Brightness**	
3.13	**Auto Power Off**	
3.14	**Acoustic Signal**	Button acknowledgement tones
3.15	**Language**	
3.16	**Date**	
3.17	**Time**	
3.18	**Format**	Formatting the memory card
3.19	**Firmware**	Firmware version
3.20	**Reset**	Simultaneously reset all settings – to the default factory settings
3.21	**Interface**	Setting for FireWire interface

Quick Guide

Have the following parts ready:
- Camera
- Focusing screen (A) with tool for changing
- Slider for removing camera back (B)
- Digital back (C) with protective cover (Ca)
- Power unit (D)
- Battery (E)
- Charger (F)
- Memory card (G)

Presets

Notes:
- For more details about particular steps/operations on the camera, please refer to the corresponding instructions.
- The pictures produced using the method described below use the default factory settings for the various functions (see p. 69).

1. Connect the charger (F) to the battery to charge it up (see p. 78).
2. Replace the focusing screen in the camera with the one supplied with the Digital-Modul-R (A) (see p. 72).
3. Remove the camera battery compartment.
4. Remove the camera back (see p. 74).
5. Attach the digital back (C) to the camera (see p. 75).
6. Attach the power unit (D) to the digital back (see p. 76).
7. Insert the charged battery into the power unit (see p. 77).
8. Insert the memory card (G) (see p. 80).
9. Set the desired modes/functions on the camera.
10. Switch on the Digital-Modul-R (see p. 81).
11. Set the date and time (see p. 87).

Taking photographs

1. Use the focusing screen to focus in the normal way. When selecting the trimming, pay attention to the frame for digital format (see p. 72).
2. Release the shutter with one of the 3 shutter release buttons to take the picture (see p. 82).

Viewing pictures

For an unlimited viewing duration:
1. Press the **PLAY** button (1.10) to view the last picture taken.
2. Press the left or right direction button (1.14) to view other pictures.

Notes:
- The **Auto Review** function (3.9, see p. 81) is available for brief automatic review after taking each picture.
- The **INFO** function (see p. 84) allows you to display additional information about a picture at the same time – with the picture reduced.

Enlarging pictures on the monitor screen

(only possible for normal review (using **PLAY** button), in **Auto Review** mode the **PLAY** button must be pressed first)
Turn the setting ring (1.13) to the right (clockwise) to view an enlarged version of the picture displayed (see p. 96).

Note: Turning to the left (anticlockwise) allows 4 or 9 reduced pictures to be viewed simultaneously to gain an overview (see p. 97).

Deleting pictures

(only possible for normal review (using **PLAY** button), in **Auto Review** mode the **PLAY** button must be pressed first)
Press the **DELETE** button (1.9) and follow the instructions on the monitor (1.11, see also p. 98).

Note: The pictures can be protected, e.g. against accidentally being deleted (**PROTECT**, see p. 100).

Formatting the memory card

1. Press the **MENU** button (1.12).
2. In the menu select the **Format** option (3.13, additional steps necessary, see p. 70/86/102) to delete all data on the memory card.

Detailed guide

Important information:

- Some of the procedures described in these instructions include operation of the camera – however, this is not dealt with in detail here. For more details about particular steps/operations on the LEICA R8/R9, please refer to the corresponding instructions.
- Flash operation
  a. TTL flash mode, i.e. using the **TTL** setting on the flash unit to control the flash exposure on the camera is not possible due to the operating principle. Reason: This TTL flash exposure control is based on the reflection properties of films. However, the surfaces of digital image sensors generally have different reflection properties. As a consequence, computer control (normally **A**) or manual mode (normally **M**) on the relevant flash unit should be used.
  b. By contrast, flash metering and exposure setting using the camera's **F** function can be used with no restrictions. With the LEICA R9 and flash units with the corresponding features, the **HSS** function is also available.
  For further details, please refer to the relevant flash unit instructions.

  c. When using electronic flash units, for correct color reproduction the white balance on the Digital-Modul-R must be set to either automatic (**A**), electronic flash ⚡ or manual setting by measurement (**M**) (see p. 90).
- Apart from a few exceptions, the procedures described in these instructions apply equally to use of the LEICA R8 and LEICA R9 camera models. Details of the exceptions:
  a. Switching the Digital-Modul-R on and off
  See "Switching on and off", p. 81
  b. Blocking the shutter release buttons
  See "The shutter release buttons", p. 82
  c. Using the **B** function
  Long exposures using the **B** function are possible with both camera models, but in the case of the LEICA R9 only in conjunction with the self timer function (see p. 95).
  d. Flash operation
  The shutter release buttons on the LEICA R9 (but not on the LEICA R8) are blocked if a flash unit attached and ready for use is set to **TTL** (see above).

Preparation

Changing the focusing screen

The focusing screen in the camera must be replaced with the one supplied (A). This has a frame corresponding to the slightly smaller format of the sensor.

Important: Parts of the subject that can be seen in the camera's viewfinder but lie outside this frame are not captured by the sensor and therefore do not appear in the picture.

Removing

1. If a lens is attached to the camera, remove it.
Then:
2. Take the tweezers from the container along with the supplied focusing screen (Figure 1) and place the cam on the front of the tweezers, as shown in Figure 2, behind the latch of the frame (behind the contact strip in the bayonet, arrow).

1

Important: To change the focusing screen, only use the tweezers; do not attempt to use your bare hands and ensure that you do not touch the focusing screen or the mirror with the tweezers or your hand while inserting, to prevent dirt and scratches on the sensitive surfaces.

3. Pull the latch forward so that the frame and the in-lying focusing screen swing downwards (Figure 3).

4. Then grip the tab on the focusing screen with the tweezers (front right).
5. Lift the focusing screen upwards out of the frame and
6. then remove it downwards (Figure 4).

Note: For secure temporary storage while making the change, you should place the focusing screen in the slit provided in the container, as shown in Figure 5.

Inserting
1. Pick up the focusing screen lying in the container by its tab using the tweezers,
2. remove it from its compartment by exerting a slight pressure on the spring groove,
3. move it diagonally upwards into the opening in the bayonet, and
4. place it in the frame.
5. Now place the cam on the front of the tweezers behind the frame retaining spring and
6. press the frame upwards until it clicks into place.

   Important: Do not use force; if necessary check that the focusing screen is correctly positioned in the frame.

Use the tweezers to place the replaced focusing screen under the spring groove in the container and click it into place in its compartment.

Cleaning the focusing screen

Dust particles can be removed using the brush supplied. It is recommended that you place the brush in the hole provided in the container and then move the focusing screen over the hair of the brush using the tweezers.

More severe dirt and fingerprints can be removed in an ultrasonic bath by an optician or by the Leica Camera AG Customer Service.

Note: Use a clean fresh ultrasonic bath; hold focusing screen with the tweezers and immerse for 3–4 minutes, do not simply place in the bath.

Important: Do not attempt to clean a focusing screen with lens paper or a cloth - this can cause such severe damage to the surface that the focusing screen can no longer be used.

Then rinse the focusing screen with distilled water in the ultrasonic unit for 3–4 minutes.

Notes:
• If non-distilled water is used, marks can be expected.
• The ultrasonic bath and distilled water should not be heated.

When removing the focusing screen, lightly shake off the residual water and place in the container to dry.

Removing the battery compartment/ an attached motor

Like the Motor-Winder-R8/R9 / Motor-Drive-R8/R9, the power unit for the Digital-Modul-R has its own integrated grip section. The battery compartment or any motor attached must therefore be removed from the camera.

Removing the camera back

1. Open the camera back.
2. Place slider B on the inside of the camera back, as shown in Figure 1. For correct guidance, the grooves in the slider must be aligned with the vertical strip to the right of the axis (arrow).

1

3. Press the slider and thus the moving upper joint pin on the back downwards. The back is thus unlocked and can be
4. tilted (Figure 2) and removed.

2

To attach the camera back, follow this procedure in reverse order.

Attaching the digital back

1. Insert the lower rigid joint pin (1.1) on the digital back, which is held slightly diagonal for this purpose, into the camera's lower cap bearing (Figure 3). The camera and digital back should be held at an angle of approximately 90°.

3

2. Press the red slider (Cb) on the protective cover (Ca) – and with it the moving upper joint pin – downwards (Figure 4),

4

3. hold it in place
4. tilt the digital back to the correct position, and
5. allow the upper joint pin (1.2) to engage in the upper cap bearing by releasing the slider.
6. To unlock the protective cover, press the left-hand side of the rocker switch (Cc, Figure 5),

5

7. slide the protective cover (Ca) to the right (approx. 5 mm, Figure 6) and carefully remove it vertically from the rear panel.

Important:
- Wherever possible, the digital back should be attached and removed in a dust-free environment.
- Take care to avoid touching the sensor surface or allowing it to become dirty. For example, fingerprints can cause irreparable damage to the sensor cover glass.

- <u>Always</u> attach the cover <u>immediately</u> <u>after</u> <u>removing</u> the digital back from the camera and <u>only</u> remove it <u>to</u> <u>attach</u> <u>it</u> to the camera. This is also necessary to protect the color filter against fading due to the long-term effects of bright light or UV radiation.
- Ensure that the cover is also free of dust.
- However, if the sensor should get dirty, i.e. in need of cleaning, to avoid damage you should always follow the instructions in the section "Cleaning the sensor", see right.

8. Close the camera by pressing on the digital back. It locks automatically – just like the camera's back.

To remove the digital rear panel, follow this procedure in reverse order.

Attaching the power unit

1. Place the power unit (D) straight onto the camera and digital back from below and slide it upwards so that its rear edge surrounds the digital back.

2. Secure the connection by tightening the fastening screw (clockwise) using the toggle (1.40).

Cleaning the sensor

If any dust or dirt particles should adhere to the sensor cover glass, depending on the size of the particles this can be identified by dark spots or marks on the pictures.
The Digital-Modul-R can be sent in to the Leica Camera AG Customer Service for cleaning of the sensor <u>at a fee</u>; this cleaning is <u>not</u> part of the warranty services. If you prefer to carry out the cleaning yourself, you should always follow the instructions below.

Important: Leica Camera AG accepts no liability for damage caused by the user when cleaning the sensor.

As far as possible, the sensor should be inspected and cleaned in a dust-free environment to prevent further soiling.
An 8 x or 10 x magnifying glass is very useful for the inspection before and after cleaning.

Attention:
- Do not attempt to blow dust particles off the sensor cover glass using your mouth; even tiny droplets of saliva can cause marks that are difficult to remove.
- Compressed air cleaners with <u>high</u> gas pressure may not be used as they can also cause damage.
- Take care to avoid touching the sensor surface with any hard objects during inspection and cleaning.

Lightly adhering dust can be blown off the sensor cover glass using clean and, if necessary ionized gases such as air or nitrogen. It makes sense to use a (rubber) bellows with no brush for this purpose. Special, low pressure cleaning sprays such as "Tetenal Antidust Professional" can also be used in line with their specified usage.

If the adhering particles cannot be removed using the method described, Leica recommends cleaning with "Sensor Swab" (type 3, width 24mm) in conjunction with the "Eclipse" cleaning solution made by Photographic Solutions Inc.. Do <u>not</u> use the pec*pad cloths supplied to clean the sensor. In addition, make sure that the instructions enclosed with the products are exactly followed. More details and dealer addresses for this cleaning system can be found at: http://www.photosol.com.

Inserting/removing the battery into/ from the power unit

Inserting
1. Switch off the Digital-Modul-R (see p. 81).
2. Hold the battery so that the side with the guide (1.54) is pointing forward (towards the lens).

3. Guide the battery into the resulting slot and
4. slide it to the far left. The battery is automatically locked in place once it overcomes the spring force.

Notes:
• The battery should be charged before using the Digital-Modul-R for the first time (see p. 78).
• The Digital-Modul-R should be switched off before removing the battery.

Removing
5. Press the unlocking slider 1.44 upwards. The spring force then causes the battery to spring upwards so that you can take hold of it
6. and completely remove it.

Setting the grip strap length
The integrated grip strap (1.26) provides extremely convenient handling and carrying – even over a long period and in conjunction with long and heavy lenses. The series of figures shows how you can adjust the grip strap length.

Charging the battery

The powerful and quick-charging lithium ion battery (E) provides the necessary power for both the LEICA DIGITAL-MODUL-R and the LEICA R8/R9.

Attention:

• Only the battery type specified and described in this manual, and/or battery types specified and described by Leica Camera AG, may be used in the Digital-Modul-R.
• The battery may only be used in the unit for which it is designed and may only be charged exactly as described below.
• Using the battery contrary to the instructions and using non-specified battery types can result in explosion under certain circumstances.
• The charger supplied should be used exclusively for charging this battery type. Do not attempt to use it for other purposes.
• Ensure that the mains outlet used is freely accessible.
• The charger may only be used in closed, dry rooms.
• The charger must be protected against moisture, and may only be cleaned when disconnected from the mains.
• The charger may not be opened. Repairs may only be carried out by authorized workshops.

• Never throw batteries into a fire as this can cause them to explode.
• Defective batteries should be disposed of as specified by their manufacturer.

Notes:

• The battery can only be charged outside the power unit (D), i.e. exclusively through the charger. It is not charged when in the power unit, even during mains operation (see p. 79).
• The battery should be charged before using the Digital-Modul-R for the first time.
• The battery must have a temperature of 0°–35°C to be charged (otherwise the charger does not switch on).
• Lithium ion batteries such as the one used in the Digital-Modul-R do not develop a "memory effect". They can therefore be charged at any time, regardless of their current charge level. If a battery is only partly discharged when charging starts, it is charged to full capacity faster.
• The battery gets warm during charging. This is normal and not a malfunction.
• A new battery only reaches its full capacity after it has been fully charged and discharged 2 or 3 times.
• To ensure a maximum service life of the battery, it should not be exposed to constant extremes of temperature (e.g. in a parked car in the summer or winter). Also, it should not be

a. completely charged unless it is to be used soon afterwards (can cause a loss of capacity) or
b. stored for several months without being charged (due to unavoidable slow discharging)
• Even with optimum conditions of use, every battery has a limited service life! After several hundred charging cycles, this becomes noticeable as the operating times get significantly shorter.

Connect the charger (C), i.e. plug its cable (1.50) into the socket on the battery (1.55) and connect the mains plug (1.52) to a mains socket.
• Both LEDs (green/`POWER`, 1.48; red/`CHARGE`, 1.47) light up to indicate that charging is in process.

After charging is complete – approx. 2 hours[1] – the red LED goes out and the charging current is disconnected. There is therefore no risk of overcharging. Nevertheless, the charger should then be disconnected from the mains.

The following LED displays indicate that charging is defective or is not possible:

	LED not lit	LED flashing
Green / **POWER** LED	a. Mains connection not correct b. Connected battery cannot be charged	–
Red / **CHARGE** LED	Battery is not charged a. Battery not connected correctly b. Connected battery already fully charged	a. Battery outside temperature range specified above (0°–35°) b. Battery totally discharged, pulsed precharging will be carried out first

If a fault cannot be resolved by eliminating the causes stated in the above table, you should contact your dealer, the Leica office in your country or Leica Camera AG.

A fully charged battery provides approx. 3 hours of operating time.

[1] If the battery temperature is too low or the battery is old, this time can be up to 3 hours; if the battery is still partially charged it can also be (significantly) shorter.

Charge level displays (2.2.6)
The battery's charge level appears in the data panel (1.21) (unless the mains unit is connected, see next section).

- ▬ = Sufficient capacity
- ▭ = Low capacity
- ▦ = Replacement or recharging necessary

Notes:
- Remove the battery if you will not be using the camera/the Digital-Modul-R for a long time. Turn off both units first.
- The date and time will have to be reset (see p. 87) within 3 months after the capacity of a battery left in the Digital-Modul-R is exhausted.

Mains operation
You can operate the camera/Digital-Modul-R unit from the mains using the mains unit available as an accessory (order no. 14 452), so that you can continue working regardless of the battery capacity.

Use
The mains adapter allows stationary use of a LEICA R8/9 with LEICA DIGITAL-MODUL-R attached over any length of time. For studio photography or very long exposures, for example, this can make working significantly easier compared to the standard power supply using the rechargeable battery.

Connection:
1. Plug the 8-pin connector (1.57 a) into the corresponding socket (1.46) on the supply unit for the Digital-Modul-R, ensuring that the guides on the connector and the socket are aligned (a white dot on the Digital-Modul-R's housing indicates the correct position 1.46 a). Then secure the connection by tightening the union nut on the connector.
2. Next connect the appropriate mains cable (1.59) for the system you are using, i.e. plug the smaller connector on the mains cable (1.60 a) into socket 2 and the mains plug (1.60 b) into a mains socket.
   - The LED 1.59 lights up to confirm the correct mains connection.

Notes
- The mains adapter automatically switches to the prevailing mains voltage.
- The battery is not charged during mains operation.
- The battery does not need to be left in the Digital-Modul-R for mains operation.
- The Digital-Modul-R can get warm during operation from the mains – this is normal and is not a malfunction.
- During mains operation, the connection between the Digital-Modul-R and the mains adapter should not be interrupted.

Safety instructions
- The mains adapter may only be connected to suitable voltage sources, i.e. only those described in these instructions.
- It may only be used in enclosed, dry rooms.

▶

- It must be protected against moisture, oil and grease.
- It should not be covered due to the risk of over-heating.
- It should never be operated in the vicinity of flamm-able gases.
- Ensure that the mains outlet used is freely accessi-ble.
- The mains adapter may only be cleaned with the mains plug removed and only with a dry cloth.
- The unit may not be used if its housing or the mains plug are damaged.
- It may not be opened. Repairs may only be carried out by authorized workshops.

Inserting and removing the memory card
The LEICA DIGITAL-MODUL-R stores the image data on an extremely compact and robust SD (Secure Digital) card. Alternatively, MultiMedia cards can also be used. SD memory cards and MultiMedia cards are small, light and interchangeable external storage media. SD mem-ory cards, particularly those with a high capacity, allow significantly faster recording and reproduction of the data. They have a write protection switch, which you can use to block them against unintentionally storing and deleting pictures. This switch takes the form of a slider on the non-beveled side of the card; in the lower position, marked LOCK, the data is protected.
SD memory cards and MultiMedia cards are available from different suppliers and with different capacities. The LEICA DIGITAL-MODUL-R includes a 512 MB SD memory card.

Note: Do not touch the memory card contacts.

1. Switch off the Digital-Modul-R with its OK/OFF button (1.15).
2. Open the flap (1.18) over the memory card slot on the right-hand side of the Digital-Modul-R, by first pressing/pulling it slightly back as indicated by the arrow. The spring force then causes the flap to auto-matically spring up.
3. Insert the memory card (G) into the slot (1.24) with the contacts to the rear and the beveled corner pointing upwards. Slide it completely into the slot against the spring resistance until you hear it click into place.
4. Close the cover by pressing it and sliding it forward until it clicks into place.

To remove the memory card, follow this procedure in reverse order. To release, the card must first be pressed slightly further in – as indicated on the flap.

Notes:
- If the memory card cannot be inserted, check that it is aligned correctly.
- If you cannot close the flap after removing the mem-ory card, replace and remove the memory card and then try again.
- When you open the flap (1.16) and remove the mem-ory card, a corresponding warning message appears in the monitor (1.11) instead of the normal displays:

  Attention   No SD-Card

- Do not remove the memory card or the battery, or disconnect from the mains while the LED (1.20) is lit to indicate that a picture is being recorded and/or that data is being saved to the card. Otherwise, the data on the card can be destroyed and the Digital-Modul-R may malfunction.
- As electromagnetic fields, electrostatic charge and defects to the Digital-Modul-R and the card can lead to damage to or loss of the data on the memory card, it is recommended that the data is also trans-ferred to a computer and saved there (see p. 45).
- For the same reason, it is recommended that the card is always stored in the antistatic cover supplied.

The most important settings/controls

Switching on/off

Switching on
The Digital-Modul-R is switched on using one of the three shutter release buttons (camera shutter release –/main – [1.27] and portrait format shutter release [1.28] buttons) or using the camera's stop-down slider or, on the LEICA R9, using its master switch. The LED (1.20) briefly lights up and the displays in the data panel (1.21) appear (see p. 69; in some cases until the Digital-Modul-R is automatically switched off, see next section). At the same time, the Leica logo appears in the monitor (1.11) – it disappears when the camera is ready to use (after approx. 3 s).
If the acknowledge tones are activated (**Acoustic Signal**, 3.14, see p. 88), they also indicate that the camera is ready to take pictures.

Note: After attaching and switching on the Digital-Modul-R, you should check whether the camera's shutter is cocked and therefore ready to take pictures. If not, this can be done at any time using the camera's quick wind lever or, after switching on the Digital-Modul-R, by tapping one of the shutter release buttons (see also "The shutter release buttons", p. 82).

Switching off
The Digital-Modul-R is switched off using either its OK/OFF button (1.15) or, on the LEICA R9, using the camer's master switch. The displays in the monitor (1.11) and the data panel (1.21) disappear.
The Digital-Modul-R is automatically switched off if an automatic power off time is specified using menu control (**Auto Power Off**, 3.13, see p. 70/86/88) and it is not operated during this time.

Taking photographs
After switching on, the Digital-Modul-R is always in record mode, i.e. the monitor (1.11) remains dark once it is ready to use.
Operation of the camera, including the settings for all camera functions, remains unchanged when using the Digital-Modul-R. The only difference is that you must take account of the frame for digital format (see p. 72) on the focusing screen when determining the trimming. From review mode (see next section), you can switch back to record mode at any time by tapping one of the shutter release buttons (see p. 82) or operating the camera's stop-down slider.

Selecting review modes
To review the pictures, you can choose between two modes: To review for an unlimited time – **PLAY** and to review briefly after taking the picture – **Auto Review**.

Review for unlimited time - PLAY
By pressing the **PLAY** button (1.10), you can switch to review mode at any time.
The last picture taken appears in the monitor along with the corresponding displays (see p. 68). However, if the memory card inserted does not contain any image files, when you switch to review mode, the following message appears: **No valid image to play**.

Automatic review of last picture - Auto Review
In **Auto Review** mode, each picture is shown in the monitor (1.11) immediately after it has been taken. This allows you to quickly and easily check whether the picture was successful or needs to be taken again.
The function allows you to choose the duration for which the picture is shown and to review the picture information with or without a histogram (see p. 84).

Setting the function

In the menu (see p. 70/86), select **Auto Review** (3.9), then select **Time** (duration) and set the desired function or duration in the submenu that then appears: (**OFF**, **1 Second**, **3 Seconds**, **5 Seconds**).

To select whether you want a display with or without a histogram (see p. 84), open up the first submenu again, select **Histogram** and then choose the desired setting (**Standard**, **Without**).

From **Auto Review** mode, you can switch to normal, i.e. unlimited, PLAY review mode at any time in one of the following ways: Press the PLAY (1.10), DELETE (1.9), PROTECT (1.7), INFO (1. 6), MENU (1.12), or OK/OFF (1.15) button or use the magnifier function (see p. 96) with the setting ring (1. 13).

Note: If you are taking photographs using the series exposure function (see p. 83) or automatic exposure bracketing (see p. 83), the last picture in the series is shown first in both review modes. Details of how to select the other pictures in the series and further options in review mode are described in the sections under "Review mode" starting on p. 96.

The shutter release buttons

There are a total of three shutter release buttons on the camera and the Digital-Modul-R, which you can use depending on the situation and/or your personal preference. All three – the camera's and the two on the Digital-Modul-R (1.29/30) – work in an identical way, i.e. in three stages:

1. A brief tap activates the camera's metering system and starts any preset self timer delay time.
   If the Digital-Modul-R was previously switched off, this switches it on (see p. 81).

Notes:

• After switching on, the camera is ready to use after approx. 3 s.

• It may be necessary to cock the camera's shutter after switching on – either manually using the quick wind lever or by pressing one of the shutter release buttons again, see also "Switching on", p. 81).

• The shutter release buttons are locked
   a. if the internal buffer memory is (temporarily) full, e.g. after a series of 10 pictures,
   b. if the memory card inserted is full,
   c. if no memory card is inserted, or
   d. if a self timer delay time is set or is already running.

2. Pressing the shutter release button to the pressure point and holding it in this position stores the metered exposure value for selective or, on the LEICA R9, center-weighted metering in **A**, **T** and **P** automatic exposure modes.

3. Completely depressing releases the camera and the Digital-Modul-R, the picture is taken and the data is transferred to the memory card.

Notes:

• A motor integrated into the Digital-Modul-R automatically cocks the shutter after each picture. Alternatively, for example to save battery capacity or avoid noise, you can also do this manually using the camera's quick wind lever. If the quick wind lever is in the ready position, i.e. folded out, the motorized drive is deactivated.

• Menu control can be used to select button acknowledgement tones (**Acoustic Signal**, 3.14, see p. 88).

• The shutter release should be pressed gently and not jerkily to avoid blurring.

Series exposures

Thanks to the integrated motor for cocking the shutter, the LEICA DIGITAL-MODUL-R can be used not only for single pictures – lever 1.30 set to (S [single]) – but also for series of pictures – lever set to (C [continuous]) – for example to capture sequences of movement in several stages.

Apart from the operation of the shutter release buttons, series exposures are taken in the same way as single pictures: If you press briefly, the camera continues to take single pictures. A series of pictures is taken for the time that you hold down the shutter release button (as long as the memory card has capacity) Depending on the set resolution (see p. 89) and compression rate/file format (see p. 89), a maximum of 2 pictures per second and up to 10 at a time can be taken. For detailed information about the total possible numbers of pictures for the 512 MB memory card supplied, refer to the table on p. 89.

Notes:
- The maximum picture frequency of 2 fps can only be achieved at shutter speeds of $^1/_{500}$ s and faster.
- Regardless of how many pictures have been taken in a series, the PLAY (see p. 81) and **Auto Review** (3.9, see p. 81) functions always show the last picture first. You can select the other pictures in the series by pressing the right and/or left direction button (1.14).

Automatic exposure bracketing

Many attractive subjects are very rich in contrast, i.e. they have both very light and very dark areas. The effect can be quite different, depending on which sections you base your exposure on. In such cases, you can use automatic exposure bracketing to produce several alternatives with graduated exposure. You can then select the most appropriate picture for further use.

With the Digital-Modul-R, an automatic exposure series (bracketing) consists of 3 pictures at a time. Two graduations are available and are selected using the lever 1.29: The pictures are exposed differently by $^1/_2$ EV (±0.5) or 1 EV (±1) at a time. Depending on the mode set on the Digital-Modul-R, the different exposures are achieved by changing the aperture (in T), the shutter speed (in A and m) or both (in P). The exposures are made in the following order: correct exposure, underexposure, overexposure.

If the lever is set to 0, the function is not operational.

Notes:
- For automatic exposure bracketing, the three pictures – with the camera's quick wind lever folded down (see "The shutter release buttons", p. 82) – are automatically taken one after the other, regardless of whether the mode is set to series or single pictures (see previous section).
- As long as the lever 1.29 is in the appropriate position, pressing one of the shutter release buttons again or holding it down with the setting on series exposures/C produces further exposure series, i.e. the lever <u>must</u> be reset if you do <u>not</u> want to produce any more exposure series. When set to single pictures/S, only a single exposure series is taken. If you want to take another, you must first set the lever 1.29 to 0 and then reset it to the desired graduation.
- Depending on the available shutter speed/aperture combinations, the working range of the automatic exposure bracketing may be limited.

Monitor and data panel

The LEICA DIGITAL-MODUL-R has two displays that are switched on along with the unit itself.

The monitor

The color monitor (1.11) is used to view the pictures on the memory card.

Note: In a digital reflex camera, the returning mirror covers the sensor – except for the brief instant when the picture is taken. Therefore, unlike on digital viewfinder cameras, a "live" image cannot be shown.

A monitor image is thus only available in review mode (see p. 81) and must be switched on using the PLAY button (1.10).
To allow unrestricted viewing, only the picture number (2.1.2) appears in the header or, for protected pictures (see p. 100), the O━ symbol (2.1.1/.7) as an indication of this; for an enlarged view or a view that has been moved from the center, this is indicated by a symbol to the bottom right (▣, 2.1.3) representing the approximate position and size of the trimming shown.

Setting the monitor brightness and contrast

The brightness and contrast of the monitor image can be set using menu control (see p. 70/86, **Monitor Brightness**, 3.12 / **Monitor Contrast**, 3.11;) to one of three levels – **High**, **Standard** or **Low** – so that you can adjust it optimally to the current situation, i.e. the available lighting conditions.

Note: The brightness setting affects the life of the battery: The brighter the image, the higher the power consumption and the shorter the battery life.

Displaying image data

You can use the INFO button (1.6) to display a whole range of picture information along with a reduced image.
You can also use menu control (**Histogram**, 3.10) to select different additional histogram variations (see next section).
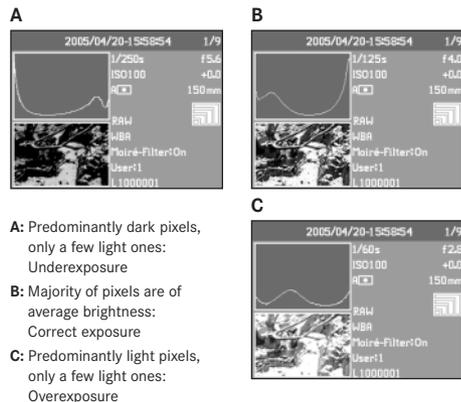
Histogram

The histogram (2.1.5) represents the distribution of brightness in the picture. The horizontal axis corresponds to the tone values from black (left) to gray through to white (right). The vertical axis corresponds to the amount of pixels for each brightness.

Along with your impression of the picture itself, this representation provides you with an additional fast and easy method of evaluating the exposure setting after taking the picture.
On the LEICA DIGITAL-MODUL-R, you can choose between four variations of the histogram: Either related to the overall brightness or separately for the 3 primary colors red/green/blue and in each case either with or without indication (red) of the areas that no longer discern details, i.e. are too light (clipping).

Note: The histogram display always relates to the trimmed area of the picture currently shown.

A:

B:

C:

A: Predominantly dark pixels, only a few light ones: Underexposure
B: Majority of pixels are of average brightness: Correct exposure
C: Predominantly light pixels, only a few light ones: Overexposure

Setting the function

In the menu (see p. 70/86), select the **Histogram** option (3.10) and then set the desired function in the corresponding submenu: (**Standard histogram without Clipping**/**Standard histogram with Clipping**/ **RGB histogram without Clipping**/**RGB histogram with Clipping**).

Note: The histogram is not available for simultaneous review of several reduced pictures or for enlarged pictures (see p. 96).

The data panel

The data panel (1.21) displays the basic settings (see also p. 69 and the next section) selected using the setting ring (1.13).

If you wish, the data field can be illuminated by pressing the ☀ button (1.19). Pressing the button again deactivates the illumination. It is deactivated automatically after 12 s to help preserve the battery capacity.

Setting operations

The functions and settings on the LEICA DIGITAL-MODUL-R are divided into two groups:

A. Basic settings for pictures, and

B. Menu functions

A. Basic settings

These basic picture settings are made up of those settings that are needed most frequently to adapt to different subjects, applications etc.:

1. Compression rate/file format (`COMP` [compression], see p. 89)
2. Resolution (`RES` [resolution], see p. 89)
3. Sensitivity (`ISO`, see p. 92)
4. Pattern overlays (`Moiré`, see p. 93)
5. White balance (`WB` [white balance], see p. 90)
This group also includes:
6. User profiles (`USER`, see p. 84)
7. Self timer (↻ , see p. 85)
The relevant settings for these functions are displayed in the data panel (1.21) when the Digital-Modul-R is switched on.
To facilitate fast and easy operation, these functions can all be selected using the setting dial (1.22) next to the data panel.

The actual settings for all of the functions are made in the same way:

1. Select the desired function by turning the setting dial (so that the corresponding marking is aligned with the index mark (1.22a).
2. Press the `SET` button (1.23) in the center of the dial.
   • The data panel then only shows the displays for the selected function.
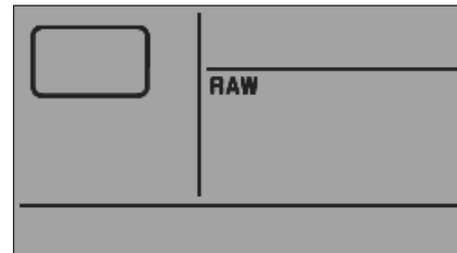
3. While keeping the `SET` button pressed, use the setting ring (1.13) to set the desired value.
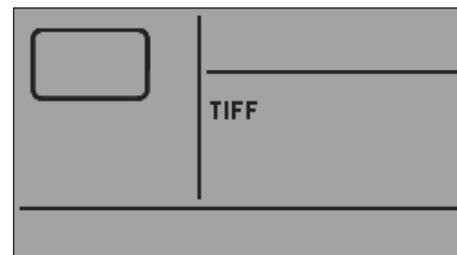
4. Release the `SET` button (1.23) and the value is stored.

The white balance (`WB`) function requires additional settings. The corresponding explanations, along with further details about the other functions, can be found in the relevant sections.

B. Menu functions

The functions grouped together in the menu (see "Menu items", p. 70) affect the basic settings of the Digital-Modul-R, the preselection of particular image properties for taking pictures, adaptation of the image files after taking the picture including deleting all data and the choice of the preferred histogram representation when displaying picture data.

In principle, all menu functions are set in the same way, except that you use the buttons to the right of the monitor, which in this case acts as the display:

1. Open the menu by pressing the MENU button (1.12).
   - The first 7 menu items then appear in the monitor (1.11).
     The currently active menu item always has a black background and a red border. The previous function variation set is always listed to the right of the line.

User Profile	
Sharpness	Standard
Color Saturation	Standard
Contrast	Standard
ISO Push	Disabled
Color Management	Standard RGB
Resize	

2. You can select the desired menu item either by turning the setting ring (1.13) or by pressing the up/down direction key (1.14).

Note: The menu items are not arranged in an "endless loop", i.e. at the "ends" of the list – the **User Profile** (3.1) and **Interface** (3.21) menu items – only one setting direction is available, down in the first case, up in the second.

3. To set the relevant function, first press the OK/OFF button (1.15).
   - The associated multi-line submenu, identified by a red border, appears to the right of the menu item. The selected item is again indicated by a black background (always the first item in the factory settings).

Contrast	Standard
ISO Push	Disabled
Color Management	Standard RGB
Resize	
Picture Numbering	Continuous
Auto Review	

4. You can then select the desired function variation either by turning the setting ring (1.13) or by pressing the up/down direction key (1.14).

Contrast	Standard	
ISO Push	Disabled	
Color Management	Standard RGB	
Resize		
Picture Numbering	Continuous	
Auto Review	**Time**	
	Histogram	

Note: You can exit the submenus at any time without applying any settings you have made in them by pressing the MENU button.

5. To save your setting, press the **OK/OFF** button again.
   - The function variation set is then shown to the right of the menu line.
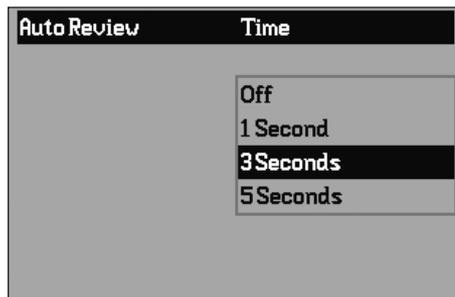
6. Exit the menu by pressing the **MENU** button again.

Menu items such as **Date** (3.16) and **Time** (3.17) require additional settings. The corresponding explanations, along with further details about the other menu functions, can be found in the relevant sections.

Presets

Menu language
By factory default, the language used for menu control is English, i.e. all menu items initially appear with their English names. German, Spanish, French, Japanese, Italian and Dutch can all be selected as alternative menu languages.
These instructions list all menu functions and displays in the same language as the instructions, however the figures show the English-language menu in each case.

Setting the function
In the menu (see p. 70/86), select **Language** (3.15) and then choose the desired language in the corresponding submenu.
- Apart from a few exceptions (button names, short designations), all linguistic information changes.

Date and time
Date and **Time** are each set using separate menu items.

Date
There are 3 variations available for the sequence of the date.

Setting
1. In the menu (see p. 70/86), select **Date** (3.16) and open up the submenu. It consists of the 2 items **Setting** and **Sequence**.
2. Select **Setting**.
   - A further submenu appears, containing groups of figures for the year, month and day, in which the currently active group, i.e. the one that can be set, is identified by a black background and red border.
3. The figures are set using the setting ring (1.13) or the up and down direction buttons (1.14), while the left and right direction buttons are used to switch between the groups of figures.

   Notes:
   - Using the setting ring is normally not only more convenient but also significantly faster.
   - The figures are not arranged in an "endless loop", i.e. the down button must be used for lower figures and the up button for higher figures, or the setting ring must be turned to the left/right.

4. After setting all 3 values, confirm and save by pressing the **OK/OFF** button.
   - The list of menu items appears again.

5. To change the way in which the figures are displayed, select Sequence in the submenu.
   • The 3 possible sequences Day/Month/Year, Month/Day/Year, and Year/Month/Day appear.
6. The preferred option is set and confirmed as described in points 3 and 4.

Note: Even if no battery is inserted or the battery is flat and the mains unit is not connected, the date and time setting is retained for around 3 months by a built-in buffer battery. However, the date and time must then be set attain as described above.

Time
The time can either be shown in 24- or 12-hour format.

Setting
Both the two groups of figures and the display format are set under the Time menu item (3.17) using the Setting and Format sub-items, essentially as described for Date on p. 87.

Automatic switch off
This function automatically switches off the Digital-Modul-R after a specified period of time. You can choose whether you wish to activate this function and, if so, how long you want the set time to be. In this way, you can tailor this function to your own personal working methods and also significantly extend the life of your battery charge.

Setting the function
In the menu (see p. 70/86), select Auto Power Off (3.13) and then choose the desired function.

Note: If the Digital-Modul-R is switched off while the camera is switched on, it can be switched back on at any time by pressing one of the three shutter release buttons (camera shutter release button [on LEICA R9 only]/main [1.27] and portrait format shutter release buttons [1.28]) or by pressing the stop-down slider on the camera [on LEICA R9 only] (see also "Switching on and off", p. 81).

Button acknowledgement or signal tones
With the LEICA DIGITAL-MODUL-R, you can decide whether you want your settings and particular sequences of functions to be acknowledged by acoustic signals – with two volumes available – or whether you want operation of the Digital-Modul-R to be silent.

A clicking tone is used as an acknowledgement, which can be activated individually to confirm presses of buttons and to indicate a full memory card. Different double tones are used for the audio histogram: The pitch of the tone remains the same for correct exposure, drops for underexposure and rises for overexposure.

Note: By factory default, the signal tones are deactivated.

Setting the functions
1. In the menu (see p. 70/86), select Acoustic Signal (3.14) and open up the submenu. It consists of the 4 items Volume, Audio Histogram (acoustic exposure control), Key Click (key acknowledgement tone), and Full SD Card (full memory card).
2. Select Volume,
   • A further submenu appears containing the 3 alternatives Off (no tones at all), High (loud) and Low (quiet).
3. Choose the desired function from this submenu.
   • After confirmation, the initial monitor screen appears again.
4. In the other 3 submenus, choose whether or not you want to activate the tones for the relevant functions.

Basic picture settings

Resolution
The picture data can be recorded at four different pixel settings, i.e. resolutions. This allows you to adjust it precisely to the intended use or to the available memory card capacity.
At the highest resolution (which also means the largest data volume), which you should select for optimum quality for larger prints, it is of course possible to save considerably fewer pictures to a card than at the lowest resolution, which is perfectly adequate for sending a picture by e-mail or for a website.

Note: When using raw data storage (**RAW**, see next section), the resolution switches to ▥ .

Note: The details in the table relate to the 512 MB memory card supplied and retention of the same settings. If, on the other hand, you change the compression rate and/or resolution, the resulting number of pictures will be different.

Setting the function
Turn the setting dial (1.22) to `RES` (resolution), keep the `SET` button (1.23) pressed, and use the setting ring (1.13) to select the desired resolution (see also p. 85).
• The display in the data panel changes accordingly (2.2.9a/b/c/d).

Compression/file format
Picture data can be recorded at four different compression rates or file formats. This allows you to adjust the setting precisely to the intended use or to the available memory card capacity.
Of course, less compressed or uncompressed data, which contains more picture information and should be selected for large prints or further processing in photographic programs for example, allows you to save considerably fewer pictures per memory card than with higher compression, i.e. with reduced picture information.

Notes:
• Regardless of the existing setting, when using raw data storage − **RAW** − the resolution is automatically set to ▥ (3872 x 2576) (see previous section). The standardized DNG (Digital Negative) format is used to store the camera raw data.
• A high compression rate can result in very fine structures in the subject being lost or incorrectly reproduced (artifacts; e.g. "stepped" diagonal edges).

Possible resolutions and resulting numbers of pictures

Compression rate/ file format / Resolution	RAW	TIFF	JPEG FINE[1] (low)	JPEG BASIC[1] (normal)
▥ (3872 x 2576)	24	16	48	110
▥ (2896 x 1920)	–	29	86	195
▣ (1920 x 1280)	–	66	185	400
▣ (1280 x848)	–	145	385	750

[1] Average values, can differ significantly depending on the subjects.

• The remaining number of pictures or recording duration shown in the monitor does not necessarily change after every picture. This depends on the subject; very fine structures result in higher quantities of data, homogeneous surfaces in lower quantities. The details in the table are based on an average file size for the set resolution. The file sizes are often smaller, depending on the picture content and the compression rate, which means that the remaining memory capacity is then greater than previously calculated and displayed.
• For the possible compression rates and the resulting numbers of pictures, refer to the table in the previous section.

Setting the function
Turn the setting dial (1.22) to `COMP` (compression), keep the `SET` button (1.23) pressed, and use the setting ring (1.13) to select the desired compression rate (see also p. 85).
• The display in the data panel changes accordingly (2.2.10).

White balance
In digital photography, white balance ensures neutral reproduction of color in any light. It is based on the Digital-Modul-R being set in advance to reproduce a particular color as white.
On the LEICA DIGITAL-MODUL-R, you can choose between nine different settings:
– **A**   For automatic control, which provides neutral results in most situations,
– Six fixed presets for the most frequent light sources,
    – ☀ e.g. for indoor pictures with (prevailing) incandescent lamp light,
    – ▨ e.g. for indoor pictures with (prevailing) light from fluorescent tubes,
    – ☀ e.g. for outdoor pictures in sunshine,
    – ⚡ e.g. for pictures with (prevailing) electronic flash illumination,
    – ☁ e.g. for outdoor pictures with cloudy skies,
    – ⌂ e.g. for outdoor pictures with the main subject in shadow,
– **M**   (Example) For manual setting by measurement, and
– **5000K**[1] (Example) For a directly set value.

Note: When using an electronic flash unit, for correct color reproduction the white balance must be set to either automatic (**A**) or ⚡ .

Setting the function

For automatic or one of the fixed settings
Turn the setting dial (1.22) to `WB` (white balance), hold down the `SET` button (1.23) and use the setting ring (1.13) to select the desired option (see also p. 85).
• The display in the data panel changes accordingly (2.2.1a/b/c/d/e/f/g).

[1] All color temperatures are specified in Kelvin.

For direct setting of values

You can directly set values between **2600** and **9800** (K[1]) (from 2600 to 5000K in increments of 100, from 5000 to 8000K in increments of 200 and from 8000 to 9800K in increments of 300). This provides you with a broad scope, covering almost all light temperatures that can occur in practice and within which you can adapt the color reproduction very sensitively to the ambient light color and/or your personal preferences.

1. Turn the setting dial (1.22) to **WB** (white balance), hold down the **SET** button (1.23) and use the setting ring (1.13) to select the **5000K** option (2.2.1h, example).
2. release the **SET** button again,
   • After you release the **SET** button, the figure **5000** flashes for approx. 3s to indicate that it can be changed during this time.
3. use the setting ring to select the desired value, and

4. confirm your setting by pressing one of the three shutter release buttons (camera shutter release button/main [1.27] and portrait format shutter release buttons [1.28] or pressing the **SET** button again.
   • The display of the set value (2.2.1i) is permanently lit.

Note: The display of the value stops flashing after approx. 3s, i.e. the value that is then set is stored. If you want to change it, you must press the **SET** button again to do so.

For manual setting by measurement

1. Turn the setting dial (1.22) to **WB** (white balance), keep the **SET** button (1.23) pressed and use the setting ring (1.13) to select the **M** option (2.2.1h).
2. Release the **SET** button again.
   • In the data panel, the **M** flashes to indicate readiness to make the setting; at the same time the message **Point the camera at a white surface and press the shutter** appears in the monitor.
3. The actual setting is made by subsequently taking a picture in which you should aim at a white or neutral gray surface in the center of the picture.
   • The **M** display appears in the data panel. To indicate that the value has been stored, the **M** stops flashing and the message **WB is set** appears in the monitor.
   However, if the exposure is not assessed as correct or the surface you aim at is not neutral, **Bad exposure WB not set** or **Bad object WB not set** appears to indicate this.
   In such cases, repeat step 3 with the correct exposure setting or with a more neutral surface.

A value calculated in this way remains stored, i.e. it is used for all subsequent pictures, until you either carry out another measurement – in this case you merely need to press the **SET** button to prepare to make the setting – or use one of the other white balance settings (2.2.1a–g, i).

[1] All color temperatures are specified in Kelvin.

ISO sensitivity

In traditional photography, the choice of ISO value reflects the light sensitivity of the film used. More sensitive films allow faster shutter speeds and/or smaller apertures and vice versa, at the same brightness. The ISO setting on the LEICA DIGITAL-MODUL-R also allows the shutter speed/aperture values to be adjusted manually in five steps to meet specific requirements.

The optimum picture quality is obtained at ISO 100, the lowest of the possible settings. The higher sensitivities ISO 200, ISO 400, ISO 800 and the additional increase possible with the final option using the ISO PUSH function (see below) result in increasing "image noise". This effect can be compared to the "graining" that occurs with highly sensitive films.

Setting the function

Turn the setting dial (1.22) to ISO, keep the SET button (1.23) pressed, and use the setting ring (1.13) to select the desired sensitivity (see also p. 85).
- The display in the data panel changes accordingly (2.2.3a/b/c/d).

If you require a further increase in sensitivity beyond ISO 800 (i.e. if a faster shutter speed is more important than the increased image noise), due to very poor lighting conditions for example, the ISO PUSH function provides you with the additional ISO 1600 sensitivity level.

Note: ISO PUSH is only available if the setting has previously been released in the menu.

In the menu (see p. 70/86), select ISO Push (3.5) and then choose the desired function in the corresponding submenu.

Image properties/Sharpness, color saturation, and contrast

One of the many advantages of electronic photography over traditional photography is that it is very easy to change critical properties of a picture, i.e. those that determine its character. While photographic software - after recording and transfer to a computer - provides great scope for doing this, the LEICA DIGITAL-MODUL-R allows you to influence three of the most important image properties even before taking the picture:

- Sharp reproduction – at least of the main subject – using the correct distance setting is a prerequisite for a successfully picture. In turn, the impression of sharpness of a picture is to a great extent determined by the sharpness of the edges, i.e. by how small the transition area between light and dark is at the edges in the picture. The impression of sharpness can thus be changed by enlarging or reducing these areas.
- The color saturation determines whether the colors in the picture tend to appear as "pale" and pastel-like or "bright" and colorful. While the lighting and weather conditions (hazy/clear) are given as conditions for the picture, there is definite scope for influencing the reproduction here.
- The contrast, i.e. the difference between light and dark sections of the image, determines whether an image has a more "flat" or "brilliant" effect. As a consequence, the contrast can be influenced by increasing or reducing this difference, i.e. by lighter reproduction of light sections of the image and darker reproduction of dark sections.

For all three image properties – independently of one another – as well as the **Standard** setting, i.e. unchanged reproduction, you can select a weaker **Low** or stronger **High** option. In the case of **Color Saturation**, **Black+White** reproduction can also be selected as a fourth option.

Note: If the file format **RAW** is selected, these settings have no effect as in this case the image data is always saved in its original form (changes must be made later on the computer).

Setting the three functions
In the menu (see p. 70/86), select the relevant item, **Sharpness** (3.2), **Color Saturation** (3.3) or **Contrast** (3.4), and then choose your preferred option in the corresponding submenus.

Moiré/Pattern overlays
In contrast to traditional photography, where the negative/picture is made up of completely arbitrarily distributed "silver grains" or "color spots", digital photography is based on capturing the subject using sensors, which have an absolutely regular arrangement of pixels. If subjects that include regular small structures, such as a balustrade photographed from a distance, fabric surfaces, a tea strainer, a pin-striped suit etc. are photographed digitally, the two structures can become overlaid, which manifests itself as an interfering pattern on these sections of the picture – so-called Moiré. On the LEICA DIGITAL-MODUL-R, a filter function can be used to mitigate this effect.

Setting the function
Turn the setting dial (1.22) to `MOIRÉ`, keep the `SET` button (1.23) pressed and use the setting ring (1.13) to select the desired option (see also p. 85).
• The display in the data panel changes accordingly (2.2.11).

Notes:
• This filter function should only be used if the corresponding effects have occurred in a picture.
• The Moiré filter function is associated with increased calculation work. As a consequence, the data processing time is extended, as is the storage time, particularly when used in conjunction with the series exposure function (see p. 83).

Selecting the working color space
The requirements in terms of color reproduction differ considerably for the various possible uses of digital picture files. Different color spaces have therefore been developed, such as the standard RGB (red/green/blue) that is perfectly adequate for simple printing. For more demanding image processing using appropriate programs, e.g. for color correction, Adobe®RGB has become established as the standard in the relevant sectors.
The LEICA DIGITAL-MODUL-R allows you to set one of these two color spaces, either **standard RGB** (often shown abbreviated as sRGB) or **Adobe RGB**.

Setting the function
In the menu (see p. 70/86), select **Color Management** (3.6) and then choose the desired function in the corresponding submenu.

Notes:
• If you want to have your prints produced by major photographic laboratories, mini labs or Internet picture services, you should always select the **standard RGB** setting.
• The **Adobe RGB** setting is only recommended for professional image processing in completely color-calibrated working environments.

Additional functions

User/application specific profiles
On the LEICA DIGITAL-MODUL-R, any combinations of all menu and data field settings can be permanently stored, e.g. so that they can be retrieved quickly and easily for recurring situations/subjects. A total of three memory slots are available for these combinations – 1/2/3

Applying settings/Creating a profile
1. Set the desired menu and data field functions.
2. In the menu, select User Profile (3.1) and then choose the desired memory slot in the corresponding submenu.

Selecting a saved profile
3. Turn the setting dial (1.22) to USER, keep the SET button (1.23) pressed, and use the setting ring (1.13) to select the desired memory slot.
   • After pressing the SET button (1.23), – initially appears in the data panel instead of one of the numbers (2.2.5).
   During this time, the button can be released again without you having to select one of the memory slots.
   • After you select one of the memory slots, the display changes accordingly.

Notes:
• In addition to the three memory slots, there is also the 0 setting, which you can use to restore the factory default settings at any time, regardless of whether you are currently using one of the memory slots or any other unsaved function settings. To a great extent, user 0 therefore corresponds to the Reset function (see next section).
• If you change one of the settings for the profile currently in use, the corresponding display is cleared.

Resetting all custom settings
You can use this function to reset all custom settings previously made to the default factory settings in one go, i.e. both the settings made using menu control and those made using the dial 1.22 in the data field.

Setting the function
In the menu (see p. 70/86), select Reset (3.20) and then choose the desired function in the corresponding submenu.
• The default factory settings for the functions listed are displayed in the monitor (1.11) and the data panel (1.21).

Important: This reset also affects any individual profiles specified and saving using the User Profile function (3.1).

Changing the picture numbering

The LEICA DIGITAL-MODUL-R assigns pictures sequential picture numbers, in the default factory setting regardless of whether the memory card is changed (**Continous**). However, you can use menu control at any time to specify that the numbering should begin again each time the memory card is changed, e.g. to assign the picture numbers to different events, subjects etc.

Setting the function

In the menu (see p. 70/86), select **Picture Numbering** (3.8) and then choose the desired function in the corresponding submenu.

• Depending on the selected function, the file numbering starts again from 1 either after the next change of memory card – **set back by changing SD-card** – or from the next picture – **set back now**.

Note: The change of numbering relates exclusively to the file names, e.g. **100_L100 0001**, which are only shown in the **INFO** display (see p. 84).

Taking photographs with the self timer

You can use the self timer to take a picture with a delay of either 2 or 12 s. This can be particularly useful, for example in the first case if you want to avoid the picture being out of focus due to camera shake when releasing the shutter or, in the second case, for group photographs where you want to appear in the picture yourself. In such cases, it is recommended that the camera be placed on a tripod.

Setting and using the function

Turn the setting dial (1.22) to ☼ , keep the **SET** button (1.23) pressed, and use the setting ring (1.13) to select the desired option (see p. 85).

• A corresponding display (2.2.8) appears in the data panel.

To start the delay time, tap one of the shutter release buttons (camera shutter release button/1.27/28).

• The flashing LED on the front of the camera indicates that the delay time is running, and it simultaneously counts down in the data panel.

Notes:

• To guard against accidental pressing, immediate shutter release is not possible when a delay time is set or running.

• While the self timer delay time is running, it can be aborted at any time by pressing the **SET** button – the relevant setting is retained and the function can be restarted by tapping one of the shutter release buttons again.

Important:

• In self timer mode, the exposure is not set by depressing a shutter release button to the pressure point, it is set immediately before the picture is taken.

• With the LEICA R9, it is necessary to use the self timer function if long exposures are to be taken using the camera's **B** function.

Review mode

As described in the "Selecting review modes" and "Automatic review of last picture" (p. 81) sections, you can view the pictures you have taken in the monitor on the LEICA DIGITAL-MODUL-R. This can either be automatic for a short time immediately after taking the picture in **Auto Review** mode or at any time, and for an unlimited time, in **PLAY** mode. In both cases, several additional options are available while viewing the pictures.

Notes:
- The Digital-Modul-R stores pictures in line with the DCF standards (Design Rule for Camera File System).
- The Digital-Modul-R can only be used to view image data produced with the unit.

Additional options when viewing

A. Viewing other pictures/"Scrolling" in the memory

You can open other saved pictures using the left and right direction buttons (1.14). Pressing the left button takes you to the pictures with lower numbers, right takes you to those with higher numbers. Holding the button down (approx. 2 s) results in fast scrolling. After the highest and lowest numbers, the series of pictures begins again in an endless loop, which means you can reach all pictures in either direction.
- The picture and file numbers in the monitor change accordingly.

B. Enlarging/selecting the trimming/simultaneous viewing of several reduced pictures

With the LEICA DIGITAL-MODUL-R, it is possible to open an enlarged trimmed area of an individual picture in the monitor to study it more closely, with a free choice of trimming. Conversely, you can also view up to 9 pictures simultaneously in the monitor, e.g. to gain an overview or to find the picture you are looking for more quickly.

Notes:
- The more the picture is enlarged, the more the reproduction quality in the monitor deteriorates – due to the proportionally lower resolution.
- It may not be possible to enlarge pictures taken with cameras of other types.
- While an enlarged picture is displayed, the direction buttons are no longer available to open other pictures, but are used to "navigate" within the picture instead.

Turning the setting ring (1.13) to the right (clockwise) enlarges a central trimmed area. The more you turn the ring, the greater the enlargement and the smaller the trimmed area.

• During calculation of the data, the hourglass symbol ⧗ appears briefly in the display. The rectangle within the frame (2.1.2) in the lower right-hand corner of the monitor symbolizes the current enlargement.


In an enlarged view, you can use the four direction buttons (1.14) to select any position for the trimming. To do this, press the button (several times) for the direction in which you want to shift the trimming.

• In addition to the enlargement, the rectangle within the frame (2.1.2) in the lower right-hand corner of the monitor symbolizes the position of the trimming displayed.


By turning the setting ring to the left (anticlockwise, starting from normal size), you can simultaneously view 4 – or by turning the ring further – 9 pictures in the monitor.

• Up to 9 reduced images are shown in the monitor (1.11) including the picture previously being viewed at normal size, which is marked with a red border.
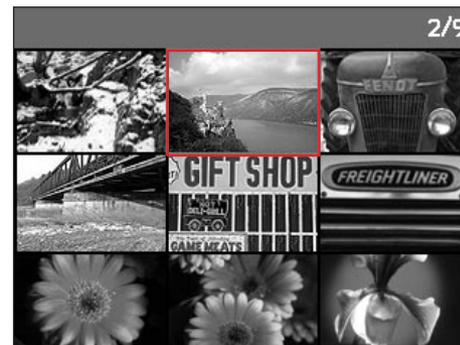
You can use the four direction buttons (1.14) to navigate freely among the reduced images, and the relevant image is marked accordingly. You can then view this image at normal size by turning the setting ring (1.13) to the right.

Note: When showing 9 pictures, turning the setting dial further to the right places the red frame around the entire group of pictures, which then allows you to "scroll" more quickly, a block at a time.
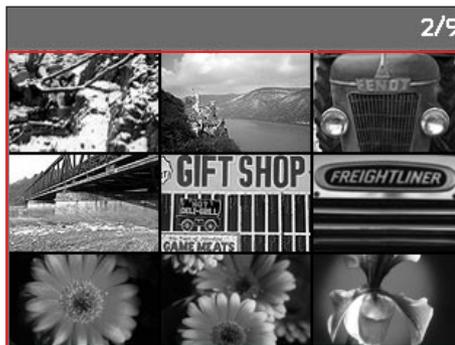
C. Deleting pictures
While a picture is displayed in the monitor, you have an opportunity to delete it if you wish to do so. This can be useful, for example if the pictures have already been saved to other media, if you no longer require them or if you need to free up more space on the memory card. The LEICA DIGITAL-MODUL-R therefore offers you the option of deleting individual or all pictures as required.
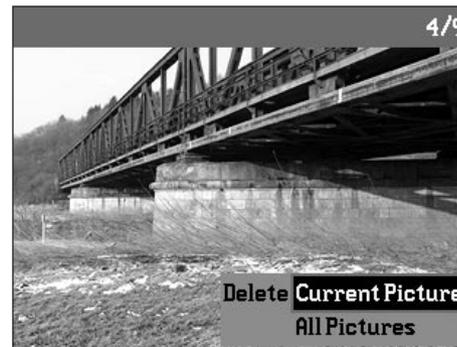
Notes:
• Deleting is possible regardless of whether a picture is currently displayed at normal size or several reduced pictures are displayed.
• For protected pictures, the protection must first be cancelled before they can be deleted (see also next section).

Important: Pictures are permanently deleted. They cannot subsequently be retrieved.

Procedure
Press the DELETE button (1.9).
• The corresponding submenu appears in the monitor display (1.11).

Notes:
• The delete process can be cancelled at any time by pressing the DELETE button again.
• The following controls and their functions are not available during the entire delete process: the setting ring (1.13) and the MENU (1.12), PROTECT (1.7), and INFO (1.6) buttons.

Subsequent operation is controlled by the menu, i.e. in principle in exactly the same way as described in the "Setting operations"/"Menu functions" sections (on p. 85/86). After specifying the relevant menu display, this is done using the direction buttons (1.14) and the `OK/OFF` button (1.15).

The first step is to decide

whether you want to delete individual pictures

`Delete`   `Current picture`

or

all pictures simultaneously

`Delete`   `All pictures`

Note: If the picture shown is protected (see p. 100), the function variation `Current picture` cannot be selected in the submenu.

When deleting all pictures, to prevent accidental deleting there is an intermediate step in which you must reconfirm that you definitely want to delete all pictures on the memory card.

Displays after deleting

Deleting individual pictures
After deleting, the preceding picture appears.
If there are no more pictures saved on the card, the following message appears: `No valid image to play` .

Deleting all pictures on the memory card
After deleting, the following message appears:
`No valid image to play` .
However, if one or more pictures were protected, the picture or the first of the pictures then appears.

Note: When a picture is deleted, the subsequent pictures in the picture counter (2.2.4) are re-numbered as follows: For example, if you delete picture no. 3, what was previously picture no. 4 then becomes no. 3, the previous no. 5 becomes no. 4 etc. However, this does not apply to the file numbering on the SD card (in the `INFO` display, see p. 84) for the remaining image files in the folder (2.2.12), which remains unchanged.

D. Protecting pictures/Clearing delete protection

The pictures stored on the memory card can be protected against accidental deleting. This protection can then be cleared at any time.
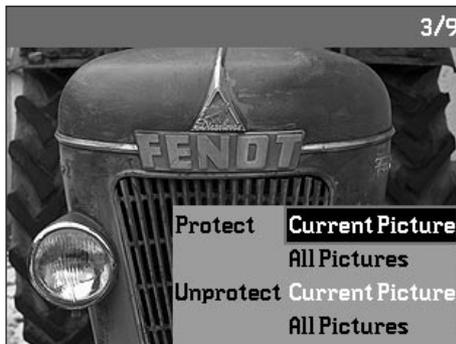
Notes:
- Pictures can be protected and the protection cleared regardless of whether a picture is currently displayed at normal size or several reduced pictures are displayed.
- For details of the different procedures/responses when you attempt to delete protected pictures, refer to the previous section.
  If you decide you want to delete them, clear the protection as described below.
- The protection is only effective in this Digital-Modul-R.
- Even protected pictures are deleted when formatting the memory card (see next section for details).
- On SD memory cards, you can prevent accidental deleting by sliding the write protection switch on the card (see p. 80) to the position marked LOCK.

Procedure

Press the PROTECT button (1.7).
- The corresponding submenu appears in the monitor display (1.11).

Notes:
- The setting process can be cancelled at any time by pressing the PROTECT button again.
- The following controls and their functions are not available during the entire setting process: the setting ring (1.13) and the MENU (1.12), DELETE (1.9), and INFO (1.6) buttons.

Subsequent operations are controlled by the menu, i.e. in principle in exactly the same way as described in the "Setting operations"/"Menu functions" sections (on p. 85/86). After specifying the relevant menu display, this is done in several steps using the direction buttons (1.14) and the OK/OFF button (1.15).

The first step is to decide

whether you want to protect individual pictures

Protect **Current picture** ,

or

all pictures simultaneously

Protect **All pictures** ,

or

whether you want to clear the existing protection for individual pictures

Unprotect **Current picture** ,

or

for all pictures   Unprotect **All pictures** .

Note: The following functions are not possible and the menu text appears in white instead of black to indicate this:
a. Protecting a picture that is already protected, or
b. if all pictures are already protected,
c. clearing the protection for a picture that is not protected, or
d. if no pictures are protected.

When protecting or clearing the protection for all pictures, to prevent accidental settings you must confirm your choice again in an intermediate step.

Displays after protection/clearing protection
After leaving menu control, the original monitor display appears again, with the corresponding symbol O━ for protected pictures (2.1.1/.7).

Note: The O━ symbol also appears if a picture that is already protected is opened.

Reducing the resolution
You can reduce the resolution (see also p. 89) of a picture that has already been stored at a later date. This is particularly recommended if you want to increase the remaining memory capacity of the card, send the picture as an e-mail attachment or use it for part of a website.
A maximum of 3 reduction levels are available, which are linked to two fixed compression rates (see also p. 89): 2896 x 1920 / **Large JPEG fine**, 1920 x 1280 / **Medium JPEG fine** and 1280 x 848 / **Small JPEG basic**.

Note: The resolution can only be reduced if at least one lower level than the original resolution is available.

Setting the function
In the menu (see p. 70/86), select **Resize** (3.7) and then choose the desired format in the corresponding submenu.
• An hourglass initially appears in the submenu to indicate that the data is being converted. When using the INFO function (see p. 26), the new properties (2.1.10 g/h) are specified.

Notes:
• Conversion of the picture data to the specified new format can take a few seconds.
• Variations with new resolutions replace those with the original resolution and take on the original picture numbers.

Formatting the memory card

It is not normally necessary to format (initialize) the memory card. However, if the **Memory card error** message is displayed, it is necessary.

Nevertheless, it is recommended that the memory card be formatted occasionally, as a certain amount of residual data (info accompany pictures) can take up some of the memory capacity.

Important: When formatting, all information present on the card, including picture files and all other data, e.g. music files, is irretrievably lost. You should there-fore get into the habit of transferring all your pictures onto a secure bulk storage medium, e.g. the hard drive on your computer, as soon as possible.

Notes:
- Do not switch off the Digital-Modul-R while the mem-ory is being formatted.
- If the memory card has been formatted in a different device, e.g. a computer, you should format it again in the Digital-Modul-R.
- If the memory card cannot be formatted, you should ask your dealer or Leica for advice.
- Even protected pictures (see previous section) are deleted when formatting the memory card.

Procedure

In the menu (see p. 70/86), select **Format** (3.15).
- The corresponding submenu appears in the monitor (1.11).

To guard against unintentional settings, you then have to confirm in the corresponding submenu that you defi-nitely want to format the memory card.

Displays during formatting
- During the formatting process, the hourglass symbol ⧗ briefly appears in the display, the submenu then disappears and the **No valid image to play** message briefly appears in the otherwise empty monitor dis-play, after which the menu items appear again.

Transferring data to a computer

The LEICA DIGITAL-MODUL-R is compatible with the following operating systems:
- Microsoft® Windows®: Windows® 98, Windows® ME, Windows® 2000, Windows® XP
- Apple® Macintosh®: Mac® OS 9, Mac® OS X

The Digital-Modul-R is equipped with an IEEE 1394 FireWire interface to transfer data onto a computer. This allows extremely fast data transfer to computers with the same kind of interface. The computer used must have either a FireWire port (IEEE 1394, for direct connection to Digital-Modul-R) or a card reader for SD cards.

Important: The FireWire plugs on the supplied cable (H) are different, matching the differing socket sizes on the Digital-Modul-R and computers, i.e. they do not even fit in the "wrong" sockets. Therefore, connecting is normally "automatically" done correctly, if necessary with the help of the supplied adapter (I). Nevertheless, be careful not to confuse them and do not use force, otherwise this could lead to a false polarity – and damage to the equipment.

Note: When using a FireWire connection, note the following: Connecting two or more devices to a computer or connecting using a hub or extension cables can result in malfunctions.

Connecting and transferring data with Windows® 98 SE

1. Under the **Interface** (3.21) menu item, select the **Disc** function and then switch the Digital-Modul-R off and back on.
2. Connect the Digital-Modul-R to a FireWire socket on the computer using the FireWire cable supplied (H and if necessary the adapter supplied, I).
3. When connecting the Digital-Modul-R for the first time, have the Windows® 98 SE installation CD ready, as it may be necessary to copy a driver onto the computer's hard drive.
   If the driver for data transfer is already installed on the hard drive, continue the data transfer as described under point 5, if not follow point 4.
4. Insert the Windows® 98 SE installation CD in a CD drive on your computer and follow the instructions on the screen. It may be necessary to restart your computer.
5. After successfully connecting, the memory card inserted in the Digital-Modul-R appears as a drive letter on your computer's desktop. At the same time, a FireWire symbol appears in the monitor (1.11) on the Digital-Modul-R.
6. You can now copy the pictures from the memory card to a folder of your choice using Windows® Explorer and access them.

Connecting and transferring data with Windows® 2000, Windows® XP

1. Under the **Interface** (3.21) menu item, select the **Disc** function and then switch the Digital-Modul-R off and back on.
2. Connect the Digital-Modul-R using the FireWire cable supplied (H, and if necessary the adapter supplied, I) to a FireWire socket on the computer.
3. After successfully connecting, the memory card inserted in the Digital-Modul-R appears as a drive letter on your computer's desktop. At the same time, a FireWire symbol appears in the monitor (1.11) on the Digital-Modul-R.
4. You can now copy the pictures from the memory card to a folder of your choice using Windows® Explorer and access them.

**Connecting and transferring data
with Mac® OS 9 and Mac® OS X**

1. Under the **Interface** (3.21) menu item, select the
   Disc function and then switch the Digital-Modul-R
   off and back on.
2. Connect the Digital-Modul-R using the FireWire
   cable supplied (H, and if necessary the adapter sup-
   plied, I) to a FireWire socket on the computer.

   Important: The FireWire plugs on the supplied
   cable (H) are different, matching the differing sock-
   et sizes on the Digital-Modul-R (1.46) and comput-
   ers, i.e. they do not even fit in the "wrong" sockets.
   Therefore, connecting is normally "automatically"
   done correctly, if necessary with the help of the
   supplied adapter (I).
   Nevertheless, be careful not to confuse them and
   do not use force, otherwise this could lead to a
   false polarity – and damage to the equipment.

3. After successfully connecting, the memory card
   inserted in the Digital-Modul-R appears as a drive
   letter on your computer's desktop. At the same
   time, a FireWire symbol appears in the monitor
   (1.11) on the Digital-Modul-R.
4. To transfer the data open the folder **DCIM** by double
   clicking on the corresponding icon. You will find indi-
   vidual directories designated **100LEICA**, **101LEICA**
   etc.
5. From here, you can copy the pictures to a folder of
   your choice and access them.

Important:
- Use only the FireWire cable supplied (H) and, if
  necessary, the FireWire adapter supplied (I).
- While data is being transferred from the Digital-
  Modul-R to the computer, the connection may not
  under any circumstances be broken by removing the
  FireWire cable, as otherwise the computer and/or
  the Digital-Modul-R can crash, and the memory card
  may even be irreparably damaged.
- While data is being transferred from the Digital-
  Modul-R to the computer, the Digital-Modul-R may
  not be switched off or switch itself off due to a lack
  of battery power, as this can cause the computer to
  crash. If it is not being operated from the mains
  when a connection is active, the battery may not
  under any circumstances be removed for the same
  reason. If the battery capacity runs short during data
  transfer, the corresponding symbol flashes (2.2.6 c,
  see p. 79). In this case, stop the data transfer, switch
  off the Digital-Modul-R (see p. 81) and charge the
  battery (see p. 78).
  We therefore recommend that during data transfer
  the Digital-Modul-R is operated from the mains (see
  p. 79) using the mains adaptor available as an acces-
  sory (order no. 14 452).

**Connecting and transferring data
to other computers**
The picture files can also be transferred to other com-
puters using a standard card reader for SD memory
cards. Card readers with a USB interface are available
for computers with a USB interface. If your computer is
equipped with a PCMCIA slot (common on portable
models), plug-in cards with a PCMCIA connection are
available as an alternative. These devices and further
information about them is available from a computer
accessory dealer.

Remote control operation via the FireWire connection with Mac® and Windows ®

The Digital-Modul-R can be controlled directly from a computer using the FlexColor software. The most up to date version of this Imacon software can be downloaded free of charge after registering your Digital-Modul-R on the Leica homepage under

www.leica-camera.com/digitalekameras/digitalmodul/ downloads/index.e html

1. Install the FlexColor software on your computer. (Description on the download page).
2. Under the **Interface** (3.21) menu item, select the **Camera** function and then switch the Digital-Modul-R off and back on.
3. Connect the Digital-Modul-R to a free FireWire socket on your computer using the FireWire cable supplied (F) and switch on the Digital-Modul-R.

   Important: The FireWire plugs on the supplied cable (H) are different, matching the differing socket sizes on the Digital-Modul-R and computers, i.e. they do not even fit in the "wrong" sockets. Therefore, connecting is normally "automatically" done correctly, if necessary with the help of the supplied adapter (I).
   Nevertheless, be careful not to confuse them and do not use force, otherwise this could lead to a false polarity – and damage to the equipment.

4. Start FlexColor.

5. A successful connection between the computer and the Digital-Modul-R is indicated by the appearance of the corresponding symbol in the monitor (1.11) and the message **CAMERA ONLINE** in the FlexColor footer.
6. You can take a picture with your LEICA R9/R9 by clicking on the **CAPTURE** button in the FlexColor main window.

The picture is immediately transferred onto the computer's hard drive, i.e. it is saved in the folder selected in the Thumbnails window in FlexColor. If you do not choose a different folder, these files are saved in C:\Scratchpad. The pictures just taken are automatically opened in FlexColor.

Note: If you save directly to the computer using FlexColor, the picture files are only saved on your computer's hard drive in Imacon "FFF" file format. The camera is only ready to take the next picture after the previous picture file has been completely transferred, i.e. series exposures are not possible. This applies regardless of whether you release the shutter on the camera or on the computer.

Installation of supplied software

The LEICA DIGITAL-MODUL-R includes a CD-ROM (J). This contains the Adobe® Photoshop® Elements® 3 program. You can use this software to professionally organize, edit, print and archive the pictures you produce with the Digital-Modul-R.

System Requirements

Microsoft® Windows® XP Professional or Home Edition with Service Pack 1; Windows® 2000 with Service Pack 4 or later; Mac OS X v.10.2.8 or v.10.3

Installation

On Macintosh® computers:

1. Insert the CD supplied in a CD or DVD drive on your computer.
2. Open a window for the drive and start the installation by double clicking and follow the instructions in the installation program.

On Windows® computers:

1. Insert the CD in your CD or DVD drive.
2. The installation program then starts automatically. Follow the instructions. If the installation does not start automatically, open Windows® Explorer and click on your CD or DVD drive. In the right-hand Windows® Explorer window you will find the file "Setup.exe". Run this file and follow the instructions in the installation program.

Note: The serial number is printed on the paper cover of the CD.

Working with raw data

If you have selected the DNG picture format (**RAW**), you have the option of influencing individual parameters or image properties yourself. To do this, you need an image editing program that includes the option of opening raw data files in the standardized DNG format, for example the Adobe® Photoshop® Elements® 3 software supplied, or Adobe® Photoshop® CS with the Camera-RAW plugin from version 2.3, or FlexColor (available for download from the Leica homepage

www.leica-camera.com/digitalekameras/digitalmodul/downloads/index.e html

During editing, you have the option of adjusting parameters such as white balance, tone values, gradation, sharpness etc. to achieve an optimum image quality. You have the option of importing DNG files from a data carrier using the Digital-Modul-R Content window. In this case, the file is then automatically saved in the Imacon "FFF" file format. This format retains the original raw data in the file. All editing is saved in the file and can either be undone later or retrieved.

Miscellaneous

Accessories	Order no.
Digital-Modul-R full matt screen for LEICA R8/R9	14 393
Digital-Modul-R microprism screen for LEICA R8/R9	14 394
Digital-Modul-R full matt screen with grid division for LEICA R8/R9	14 395
Mains unit complete with connecting cable and 2 mains cables (D/USA)	14 452
Lithium ion battery pack	14 447
Electric shutter release switch for LEICA R8/R9	14 254
Electric cable release for LEICA R8/R9	14 255
Extension for shutter release switch/ cable release	14 275
LEICA REMOTE CONTROL R8/R9	14 202

Spare parts	Order no.
Standard/universal Digital-Modul-R focusing screen for LEICA R8/R9	14 391
Slider for removing the rear camera panel	412-237.001-020
Protective cover for sensor	412-030.802-000
Charger, complete (with 3 interchangeable plugs and car charging cable)	14 449
FireWire cable, (2 m, 4 to 8 pin)	412-237.003-000
FireWire adapter, 6 to 4 pin	412-237.004-000

Precautions and care instructions

Storing the Digital-Modul-R

If you will not be using the Digital-Modul-R for a long period, it is recommended that you

1. switch it off (see p. 81),
2. remove the memory card (see p. 80) and
3. remove the battery (see p. 77) (after a maximum of 3 months, the date and time entered are lost, see p. 87)

General precautions

Do not use the Digital-Modul-R in the immediate vicinity of devices with powerful magnetic, electrostatic or electromagnetic fields (e.g. induction ovens, microwave ovens, television sets or computer monitors, video games consoles, cell phones, radio equipment).

- If you place the Digital-Modul-R on or immediately adjacent to a television set, the magnetic field could impair the pictures recorded.
- The same applies for use in the vicinity of cell phones.
- Strong magnetic fields, e.g. from speakers or large electric motors, can damage the stored data or the pictures.

- If the Digital-Modul-R does not work correctly as a result of the effects of electromagnetic fields, switch it off, remove the battery or unplug it from the optionally available mains adapter, re-insert the battery or reconnect to the mains adapter and then switch it on again.

Do not use the Digital-Modul-R in the immediate vicinity of radio transmitters or high voltage power lines.

- Their electromagnetic fields can also interfere with picture recordings.

Protect the Digital-Modul-R against contact with insect sprays and other aggressive chemicals. Petroleum spirit, thinner and alcohol may not be used for cleaning.

- Certain chemicals and liquids can damage the Digital-Modul-R's housing or the surface finish.
- As rubber and plastics sometimes emit aggressive chemicals, they should not remain in contact with the Digital-Modul-R for a long time.

Ensure that no sand or dust can penetrate into the Digital-Modul-R, e.g. on the beach.

- Sand and dust can damage the camera and the memory card. Take particular care when inserting and removing the card.

Ensure that no water can penetrate into the Digital-Modul-R, e.g. in snow and rain or on the beach.

- Moisture can cause malfunctions and even permanent damage to the camera, the Digital-Modul-R, and the memory card.
- If salt water spray gets onto the Digital-Modul-R, wet a soft cloth with tap water, wring it out thoroughly and wipe the Digital-Modul-R with it. Then wipe thoroughly with a dry cloth.

Monitor/data panel
- If the Digital-Modul-R is exposed to significant temperature fluctuations, condensation can form on the data panel/monitor. Wipe it carefully with a soft dry cloth.
- If the Digital-Modul-R is very cold when switched on, the data panel/monitor display will initially be slightly darker than normal. As soon as the LCD element warms up, the normal brightness is restored.

The monitor is manufactured using a high-precision process. This ensures that, of the total of around 130,000 pixels, more than 99.995 % work correctly and only 0.005 % remain dark or are always light. However, this is not a malfunction and it does not impair the reproduction of the picture. Cosmic radiation (e.g. on flights) can cause pixel defects.

Condensation

If condensation has formed on or in the Digital-Modul-R, you should switch it off and leave it to stand at room temperature for around an hour. Once the camera temperature has adjusted to room temperature, the condensation will disappear by itself.

Care instructions

For the Digital-Modul-R
- Unplug from the mains adapter before cleaning the Digital-Modul-R.
- Only clean the Digital-Modul-R with a soft dry cloth. Stubborn dirt should first of all be covered with a well-thinned cleaning agent and then wiped off with a dry cloth.

For the battery

Rechargeable lithium ion batteries generate power through internal chemical reactions. These reactions are also influenced by the external temperature and humidity. Very high or low temperatures reduce the life of the battery.
- Remove the battery if you will not be using the Digital-Modul-R for a long time. Otherwise, after several weeks the battery could become totally discharged, i.e. the voltage is significantly reduced, as the Digital-Modul-R uses a low idle current (to save the date) even when it is turned off. A totally discharged battery cannot be recharged.

- Store the batteries only when they are fully discharged. This condition, which is not the same as being totally discharged, is reached when the display 2.2.6c appears in the data panel (1.21). For very long storage periods, it should be charged up and discharged again around once a year.
- Always ensure that the battery contacts are clean and freely accessible. Protect the contacts from metal objects such as paper clips or pieces of jewelry, which can cause short circuits. A short-circuited battery can get very hot and cause severe burns.
- If a battery is dropped, check the housing and the contacts immediately for any damage. Using a damaged battery can damage the Digital-Modul-R.
- Batteries have only a limited service life.
- Take damaged batteries to a collection point to ensure correct recycling.
- Never throw batteries into a fire as this can cause them to explode.

For the charger
- If the charger is used in the vicinity of radio receivers, it can interfere with the reception; make sure there is a distance of at least 1m between the devices.
- When the charger is in use, it can make a noise (buzzing) – this is quite normal and is not a malfunction.
- When it is not in use, disconnect the charger from the mains as otherwise it uses a certain (very small) amount of power even when the camera is turned off and the battery is not being used.
- Always keep the charger's contacts clean.

For memory cards
- Whilst a picture is being stored or the memory card is being read, it may not be removed, and the Digital-Modul-R may not be turned off or exposed to vibrations.
- For safety, memory cards should only ever be stored in the antistatic case supplied.
- Do not store memory cards where they will be exposed to high temperatures, direct sunlight, electromagnetic fields or static discharge.
- Do not drop or bend a memory card as this can damage it and result in loss of the stored data.
- Always remove the memory card if you will not be using the Digital-Modul-R for a long time.
- Do not touch the connections on the rear of the memory card and keep them free of dirt, dust and moisture.
- It is recommended that the memory card be formatted from time to time as the fragmentation that occurs when deleting can block some of the memory capacity.

Storage
- Always remove the battery and memory card when storing the Digital-Modul-R.
- The Digital-Modul-R should preferably be stored in a closed and padded case, so that nothing can damage it and it is protected from dust.
- Store the Digital-Modul-R in a location that is not exposed to high temperatures or moisture. When used in humid conditions, the Digital-Modul-R should be completely free of all moisture before being stored away.
- To prevent the formation of fungus, do not store the Digital-Modul-R in a leather case for long periods of time.

Data structure on the memory card
When the data stored on a card is transferred to a computer, the following folder structure is used:
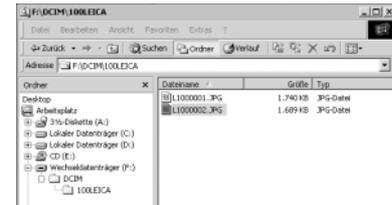
Up to 999 pictures can be stored in each of the folders **100LEICA**, **101LEICA** etc.

Cardslot open
Close the flap (see p. 80).

No SD-Card
Insert a memory card (see p. 80).

Full SD-Card
Insert another memory card (see. p. 80) or delete pictures you no longer need (see p. 98/99).

SD-Card Protected
(Against deleting)
Reset the write protection for the memory card (see p. 80).

MEMORY CARD ERROR
(Depending on the card this message may be issued with a delay)
It was not possible to access the memory card. Remove it and re-insert it (see p. 80). The memory card may be damaged.

NO VALID IMAGE TO PLAY
No pictures are saved on the inserted card.
In order for review to take place, pictures first of all need to be taken or another card with saved pictures inserted (see p. 80).

Data transfer
The image data is being transferred to the SD-card. During this time, no other image processing is possible.

Error code XX
In case of such a message please ask your Leica dealer or the Leica agency in your country for further information.

Malfunctions and resolving them

1. The Digital-Modul-R does not respond when switched on.
1.1 Is the battery inserted correctly or is the charger connected correctly?
The battery is only charged outside the Digital-Modul-R.
1.2 Does the battery have sufficient charge?
Use a charged battery.

2. The Digital-Modul-R switches off again immediately after being switched on.
2.1 Does the battery have sufficient charge to operate the Digital-Modul-R?
Charge the battery or insert a charged battery.
2.2 Is there any condensation?
This occurs if the Digital-Modul-R is moved from a cold place to a warm one. Wait until the condensation clears.

3. I cannot save the picture.
3.1 Is a memory card inserted?
3.2 The capacity of the memory card is full.
Delete pictures you no longer require before taking new ones.

4. The monitor is too dark or too bright.
4.1 Set the desired brightness.

5. The picture I have just taken is not shown in the monitor
5.1 Is the **Auto Review** function activated (when the Digital-Modul-R is set to recording mode)?

6. I cannot display the picture.
6.1 Is a memory card inserted?
6.2 The memory card does not contain any data.

7. Despite being connected to a computer, I cannot transfer any data.
7.1 Check that the computer and the Digital-Modul-R are correctly connected to one another.

8. The time and date information is incorrect.
8.1 The Digital-Modul-R has not been used for a long time, particularly if the battery has been removed. Set the date and time.

Index

Unit description and technical data

Digital-Modul-R

Type Digital module that can be changed by photographer; fully compatible with LEICA R8 and R9, all Leica R lenses and all Leica lenses with "R control cams", two parts: digital back and power unit.

Picture format/image sensor 3872 x 2576 pixels (10 MPixel) CCD chip, active area 26.4 x 17.6 mm, extension factor 1,37.

Resolution Adjustable: 3872 x 2576, 2576 x 1712, 1936 x 1280, 1280 x 848 pixels.

Data formats DNG (raw data), TIFF, 2 JPEG compression levels.

File size DNG: 21 MB, TIFF: 29/58 MB.

Color depth 16 bit

Color space Adobe® RGB, sRGB.

Sensitivity ISO 100 to ISO 1600.

White balance Automatic, manual, 6 presets, color temperature entry.

Storage medium SD card up to 2 GB, larger SD cards with firmware update.

Monitor 1.8" color display, 130,338 pixels.

Data panel Black/white display for settings: picture counter, ISO, exposure correction, battery level, self timer, compression, resolution, Moiré on/off, white balance.

Menu Sharpness, color saturation, contrast, picture numbering, monitor contrast and brightness, **Auto review** duration, histogram on/off, audio histogram on/off, power saving options, format card, alarm signals, date, time, user profile, firmware update, reset.

Menu languages German, English, French, Spanish, Italian, Japanese, Dutch.

Interface IEEE 1394 FireWire.

Switch on/off With master switch on rear of Digital-Modul-R, optional automatic switch off of Digital-Modul-R after approx. 2/5/10 minutes (Standby mode), reactivation by tapping one of shutter releases or switching Digital-Modul-R off and back on.

Shutter setting Motorized using power unit.

Max. exposure time 16 seconds

Series exposures 2 fps, max. 10 pictures in series.

Automatic exposure bracketing Optional: 3 pictures with $^1/_2$ or 1 EV graduations.

Compatibility Mac® OS 9.x–Mac® OS X, Windows® 98/ME/2000/XP.

Software Adobe® Photoshop® Elements® 3 (Mac/Win)

Self timer Delay time either 2 or 12 s (indicated by flashing LED on front of camera and corresponding symbol in data panel).

Operating conditions 0 to +40 °C

Power supply Rechargeable lithium ion battery, 7.4 V, 1800 mAh.

Charger Input: 100–240 V AC, 50/60Hz, automatic switching; Output: 8.4 V DC, 1.2A.

Tripod thread A$^1/_4$ DIN 4503 ($^1/_4$").

Dimensions (W x H x D) with LEICA R9: 158 x 140 x 89 mm

Weight Digital back with power unit and battery: 725 g, complete with LEICA R9: 1,395 g

Mains adapter

Inlet AC 100–240 V, 50/60 Hz, automatic switching

Outlet DC 8 V, max. 3.2 A

Dimensions (W x H x D) 45 x 28 x 95 mm (housing only)

Weight approx. 195 g (unit complete with camera connecting cable and 1 mains cable)

Items supplied LEICA DIGITAL-MODUL-R , power unit for shutter setting and power supply, universal matt focusing screen with image field frame for digital application, tool for removing camera aback, Lithium ion battery 7.4 V/ 1800 mAh, battery charger 100–240 V with mains adapters (Euro, UK, USA), charging cable for 12 V and 24 V vehicle connection, 512 MB SanDisc Ultra II SD card, sensor protective cover, storage case for LEICA DIGITAL-MODUL-R, FireWire cable with adapter (4-/6-pin), Adobe® Photoshop® Elements® 3 (Mac/Win).

Subject to changes to design, manufacture and range.

Leica Academy

As well as outstanding high-performance products for taking, reproducing and viewing photographs, for many years we have also been offering the special services of the Leica Akademie, with practical seminars and training courses, which are intended to share our knowledge about the world of photography, projection and magnification with both beginners and advanced photographic enthusiasts.

The contents of the courses, which are run by a trained team of experts in the modern, well-equipped training suite at our Solms factory and in the nearby Gut Altenberg, vary from general photography to areas of special interest and offer a range of suggestions, information and advice for your own work. More detailed information and the current Leica Academy brochure are available from:

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Leica on the Internet

Current information about products, news, events and the Leica company is available on our homepage on the Internet at:
http://www.leica-camera.com

Leica info service

The Leica Informations-Service can provide you with an answer to any technical questions relating to the Leica range either in writing, on the telephone or by e-mail.

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Leica Customer Service

Leica AG's Customer Service center, or the repair service of the Leica national offices (see the Warranty Card for an address list), is available to assist you in maintaining your Leica equipment or in case of damage. Please contact your nearest authorised Leica dealer.

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