

RICOH

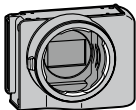
GXR MOUNT A12

Instruction Manual

The serial number may be found on the bottom of the lens.

Package Contents

Before using your Ricoh lens, confirm that the package contains the items listed below.



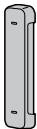
Lens mount unit

The serial number may be found on the bottom.



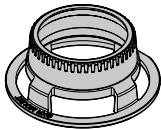
Mount cap

Comes attached to the lens mount unit.

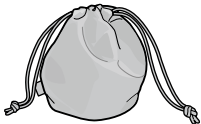


Connector cap

Comes attached to the lens mount unit.



Lens checker



Soft case

- **Instruction manual
(this manual)**
- **Warranty**

Introduction

To use this lens mount unit, you need to attach Leica M Mount Lens etc. to GXR camera body.

Refer to the Camera Body User Guide for details about how to operate shooting and playback functions and change settings and to read important precautions for use. This instruction manual will explain functions and operating procedures that are available only when this lens mount unit is used with a compatible camera body. **See also the GXR Camera Body User Guide.**

To make the best use of this product's functions, read this manual thoroughly before use. Please keep this manual handy for ease of reference.

Ricoh Co., Ltd.

Safety precautions	Read all safety precautions thoroughly to ensure safe use.
Test shots	Take test shots to ensure that the camera is working properly before taking photos on important occasions.
Copyright	Reproduction or alteration of copyrighted documents, magazines, and other materials, other than for personal, home, or other similarly limited purposes, without the consent of the copyright holder, is prohibited.
Exemption from liability	Ricoh Co., Ltd. assumes no liability for failure to record or display images as a result of product malfunction.
Warranty	The warranty supplied with this product is only valid within the country of purchase. The manufacturer assumes no responsibility for servicing the product in other countries or bearing any expense thereby incurred.
Radio interference	Operating this product in the vicinity of other electronic equipment may adversely affect both the camera and the other device. Interference is particularly likely if the camera is used in close proximity to a radio or television. This can be resolved by moving the camera as far as possible from the other device, reorienting the radio or television antenna, or plugging the radio or television into a different outlet.

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Every effort has been made to ensure the accuracy of the information in this document. Should you nevertheless notice any errors or omissions, we would be grateful if you would notify us at the address listed on the back cover of this booklet.

For the latest lens information, contact the lens retailer.

Safety Precautions


Warning Symbols

Various symbols are used throughout this instruction manual and on the product to prevent physical harm to you or other people and damage to property. The symbols and their meanings are explained below.


 Danger	This symbol indicates matters that may lead to imminent risk of death or serious injury if ignored or incorrectly handled.
 Warning	This symbol indicates matters that may lead to death or serious injury if ignored or incorrectly handled.
 Caution	This symbol indicates matters that may lead to injury or physical damage if ignored or incorrectly handled.


Sample Warnings




The  symbol alerts you to actions that must be performed.




The  symbol alerts you to prohibited actions.

The  symbol may be combined with other symbols to indicate that a specific action is prohibited.

Examples

 = Do not touch

 = Do not disassemble

Observe the following precautions to ensure safe use of this unit.

Danger



Do not attempt to disassemble, repair or alter the equipment yourself. The high-voltage circuitry in the equipment poses significant electrical hazard.

Warning



Keep the equipment out of the reach of children.



Do not touch the internal components of the equipment if they become exposed as a result of being dropped or damaged. The high-voltage circuitry in the equipment could lead to an electric shock. Remove the battery as soon as possible, being careful to avoid electric shocks or burns. Take the equipment to your nearest dealer or service center if it is damaged.



Do not use the equipment in wet areas as this could result in fire or electric shock.



Do not use the equipment near flammable gases, gasoline, benzene, thinner or similar substances to avoid the risk of explosion, fire or burns.

- Do not use the equipment in locations where usage is restricted or prohibited as this may lead to disasters or accidents.



Caution



Do not allow the equipment to get wet. In addition, do not operate it with wet hands. Both pose the risk of electric shock.

Safety Precautions for Accessories

When using optional products, carefully read the instructions provided with the product before using that product.

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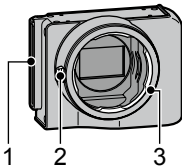
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Names of Parts



- 1 Connector
- 2 Lens release button
- 3 Body-side mount

Upgrading the Product

Updating the firmware

When you first attach the lens mount unit to the camera body, the version update function will start automatically if the firmware of the camera body need to be updated. In such case, update the firmware of the camera body using the following procedure.

If the firmware version is already up to date, the version update function will not start and you can use the lens right away.

- 1 Check that the camera is turned off and attach the lens mount unit to the camera body.**
 - For details about how to attach the lens mount unit, refer to the Camera Body User Guide.

2 Turn on the camera body.

- A confirmation message about updating the firmware appears.

3 Press the Fn1/Fn2 buttons to select [Yes] and then press the MENU/OK button.

- The firmware update begins and the following messages appear on the picture display.


[Checking rewrite file]

[Rewriting program]

The camera restarts and the firmware version will be displayed, and then the update will be completed.



Note

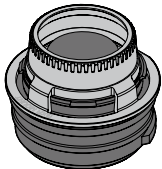
- The lens does not have to be attached when updating the firmware.
- To confirm the firmware version, select [Firmware Version] in the setup menu. Alternatively, with the camera off, keep the  (Play) button pressed for more than 1 second while holding the – button pressed down. The firmware version will appear for about 20 seconds.
- For the latest information on firmware updates, see the Ricoh Web site (http://www.ricoh.com/r_dc/).

Attaching the Lens

Determining whether a lens can be used with the lens mount unit

Check to see if your lens can be attached to the lens mount unit.

- 1 Line up the holes on the lens checker with the tabs on the lens mount, and slide the lens checker straight onto the lens.
 - Slide it on so that it lightly rests on the lens.



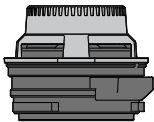
2 Place the lens on a flat surface, and check it from the side, edge-on.

- Check to make sure that the lens checker and the lens mount side are firmly attached to each other with no gaps.

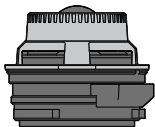
The lens cannot be attached in the following cases:

The lens is sticking out of the top of the lens checker.

There are gaps between the lens checker and the lens mount.



The lens can be used
with the unit



The lens cannot be used
with the unit



The lens cannot be used
with the unit



Caution-----

- Forcibly attaching the lens mount unit to a lens that cannot be attached may cause the lens or lens mount unit to be scratched or damaged.
- Do not attempt to forcibly push the lens checker onto the lens mount. Handle with care so as not to scratch or otherwise damage the lens when attaching it.
- With retractable lenses, check the lens with it retracted.
- For the latest information on lenses that can be attached to the lens mount unit, refer to the Ricoh website (http://www.ricoh.com/r_dc/). Please note, however, that a lens may not be available for attachment depending on its condition. Make sure to confirm in advance whether it can be attached using the checker.

Attaching the Lens

- 1 Line up the mark on the lens with the red mark on the lens mount unit, and attach the lens straight onto the lens mount unit.
- 2 Turn the lens to the right until the lens lock pin lines up with the lens lock groove.

Removing the Lens

- 1 Turn the lens to the left while pressing the lens release button until the mark on the lens lines up with the red mark on the lens mount unit.
- 2 Pull the lens straight out to remove it.




Caution -----

For more information on the lens, refer to the lens instruction manual and other related documents.

Cleaning the sensor unit

Follow the steps outlined below to clean the sensor.

- 1 Turn on the power.
- 2 Slide the POWER switch to OFF while pushing the  button.
 - Turn off power with the shutter left open.
- 3 Clean the unit using a blower from a camera supply store.
- 4 Once done cleaning, turn the power on and then off again.



Caution

- Do not touch the sensor or shutter.
- The color may fade if the sensor is subjected to intense light for long periods of time. Do not let the camera sit with the shutter open.
- When the [Shutter Initial Sel.] in the setup menu is set to [OPEN], the shutter remains open when the power is turned off.
- Do not use a spray blower with this device.
- Do not insert the nozzle of the blower inside past the mount.
- Damages during cleaning will not be covered by warranty.
Be careful not to damage the device while cleaning it.



Shooting

Focus


The only focus mode available is MF (Manual Focus). Adjust the focus manually using the lens.



Note -----

Using [Enlrg Display] ( P. 27) or [Focus Assist] ( P. 35) from the shooting menu will make it easier to check the focus.

P: Program Shift Mode/A: Aperture Priority Mode

P: Program Shift Mode and A: Aperture Priority Mode operate in the same way as : Auto Shooting Mode.

S: Shutter Speed Priority Mode

If [Auto] or [Auto-Hi] is selected for the ISO setting, the exposure will be adjusted to the proper exposure within the ISO range while the camera is in shutter speed priority mode.

M: Manual Exposure Mode

If [Auto] or [Auto-Hi] is selected for ISO Setting, ISO will be fixed at 200 while the camera is in manual exposure mode.

You can select between B (Bulb) and T (Time) for the shutter speed.

With B, the image is exposed while the shutter release button is pressed and exposure ends when the button is released. With T, exposure starts when the shutter release button is pressed and ends when it is pressed again. In either mode, the camera stops shooting compulsorily once 180 sec. has elapsed.



Note

B and T can both be operated using the optional cable switch (CA-1).

Addition of Scene Modes

[Miniaturize], [High Contrast B&W], [Soft Focus], [Cross Process], [Toy Camera], and [Electronic Shutter] have been added to Scene Mode.

[Electronic Shutter] allows you to take pictures without worrying about the shutter release sound or vibrations. You can select a shutter speed between 1/8000 sec. and 1 sec.




Caution

- Take precautions for dealing with camera shake when using [Electronic Shutter] as camera shake may occur due to differences in exposure times between the top and bottom halves of the screen. It is not suitable for use with moving subjects.
- You cannot set the ISO to 200 when using the [Electronic Shutter].

Enlarging pictures

Pressing and holding down the MENU/OK button enlarges and displays the center. Pressing and holding down the MENU/OK button again enlarges the center and displays the enlarged part over the entire screen. Pressing and holding the MENU/OK button again returns to normal display.

You can set the display magnification by pressing and holding down the  (Self-timer) button or by selecting [Magnification Ratio] from the shooting menu. Select from [2×], [4×], or [8×] using the +/- buttons, and then press the MENU/OK button.

You can move the enlarged view area using the direction keys (+/-/Fn1/Fn2).



Note

- The display returns to the normal display when exposure compensation is executed, or with the Direct button, in Enlarged View mode.
- If AE Lock is turned on before the entire image is enlarged, AE will continue to run during Enlarged View, and pictures will be captured at the locked AE settings.
- You can register [Enlrg Part] and [Enlrg All] to the [Set Fn1/Fn2 Button] in the Key Custom Settings menu.

Registering Functions to the Up-down Dial

You can switch between modes using the Up-down dial when Flash mode and Self-timer are set to on.

Addition of Supported Sizes for Auto Resize Zoom

Auto resize zoom supports all aspect ratios.

Settings

[Picture Quality/Size]

The following picture quality, image size and aspect ratio options are available for the [Picture Quality/Size] setting.

A photograph's file size will depend on the combination of picture quality and image size used. When recording movies, you can select the [Movie Size].

Photographs

Item	Aspect ratio	Compression	Image size (pixels)
RAW	16:9 *2	FINE/NORMAL/VGA *1	4288 × 2416
	4:3	FINE/NORMAL/VGA *1	3776 × 2832
	3:2 *2	FINE/NORMAL/VGA *1	4288 × 2848
	1:1 *3	FINE/NORMAL/VGA *1	2848 × 2848
L (Large)	16:9 *2	FINE/NORMAL	4288 × 2416
	4:3	FINE/NORMAL	3776 × 2832
	3:2 *2	FINE/NORMAL	4288 × 2848
	1:1 *3	FINE/NORMAL	2848 × 2848
M (Middle)	16:9 *2	FINE/NORMAL	3456 × 1944
	4:3	FINE/NORMAL	3072 × 2304
	3:2 *2	FINE/NORMAL	3456 × 2304
	1:1 *3	FINE/NORMAL	2304 × 2304

Item	Aspect ratio	Compression	Image size (pixels)
5M	4:3	FINE	2592 × 1944
3M	4:3	FINE	2048 × 1536
1M	4:3	FINE	1280 × 960
VGA	4:3	FINE	640 × 480

- *1 When [RAW] is selected, this is the setting used for the JPEG copy.
- *2 Depending on the area photographed, black bands may appear on the top and bottom of the picture display.
- *3 Depending on the area photographed, black bands may appear at the right and left sides of the picture display.

Movies

Item	Movie size
HD1280	1280 × 720
VGA640	640 × 480
QVGA320	320 × 240

[Noise Reduction]

Perform noise reduction from [Off], [Auto], [Weak], [Strong], or [MAX]. The time required to record images varies with the option selected.



Caution -----

You cannot use this function when [Portrait], [Sports], [Miniaturize], [High Contrast B&W], [Soft Focus], [Cross Process], [Toy Camera], or [Skew Correct Mode] is selected in the scene modes.

[White Balance]

You can select [Incandescent Lamp1] or [Incandescent Lamp2] in the [White Balance] settings. Use with incandescent lighting. Using [Incandescent Lamp2] will leave a slightly redder tint compared to [Incandescent Lamp1].



Note -----

- When [Incandescent Lamp2] is selected, images will be shot with the same color shades as with the [Incandescent] setting described in the Camera Body User Guide.
- If the flash is fired using DISP. in [Manual], the white balance will be set to the metering results calculated when the flash went off.

[ISO Setting]

[ISO-LO], [ISO 250], [ISO320], [ISO 500], [ISO640], [ISO 1000], [ISO1250], [ISO 2000], and [ISO 2500] can be selected.



Note -----

- [ISO-LO] is equivalent to ISO 100 ([Electronic Shutter] of Scene Mode is equivalent to ISO 125). However, the dynamic range gets narrower and the higher brightness levels make whiteout more likely to occur.
- When [Auto] is selected and the flash is used, the sensitivity used will gain up to ISO 800 equivalent.
- When [Auto] is selected and the flash is not used, the minimum and maximum values for the ISO sensitivity will be ISO 200 and ISO 400. ([Electronic shutter] in scene mode is ISO 250.)

[Focus Assist]

The shape outlines and contrast of the images shown on the picture display are intensified, making it easier to adjust the focus.



Note

You can select the display method for Focus Assist from [Focus assist selection] in the setup menu. (👉 P. 44)

[Peripheral illum.]

You can correct the background light intensity in the range of -3 to +3.

[Distortion Correction]

You can correct distortion in an image by selecting [Barrel] or [Pincushion] and then selecting [Strong], [Medium], or [Weak].



Caution

You cannot make corrections to images displayed on the picture display or to RAW images.

[Color shading correction]

You can correct the color tones in the four corners of the image. You can correct in a range between -4 and +4 for both R and B.

[Flash Shut Spd Lim]

Use to limit the shutter speed to lower speeds while the flash is being used in order to prevent camera shake. Select from [Auto], [1/2], [1/4], [1/8], [1/15], [1/30], [1/60], or [1/125]. The shutter speed will not drop below the set speed while the flash is being used.



Note -----

- The maximum shutter speed setting that works with the flash is 1/180 sec. The flash cannot be used with shutter speeds faster than this setting. The shutter speed will not be faster than 1/180 sec. while the flash is being used. This applies to external flashes, as well.
- This setting is invalid when using slow-sync flash.

Key Custom Settings Tab Menu

[Reg. My Settings]

You can select from any of My Settings Box [1] to [6] and Card [1] to [6] for the save location.

[Edit My Settings]

You can edit the [Lens Name], [Focal Length], and [F-aperture] for Exif files in [Lens Info. Input] from [Edit My Settings].



Note -----


This information does not affect the shooting settings.

[Shutter Button Confirmation]

When [ADJ./DIRECT] is set, pressing the shutter release button halfway down will finalize settings in ADJ. mode and on the DIRECT screen, and you will be able to shoot pictures. When [ADJ.] is set, the ADJ. mode settings will be finalized, enabling you to shoot pictures. When [DIRECT] is set, the DIRECT screen settings will be finalized, enabling you to shoot pictures. After you finish shooting pictures, the system will return to the Monitoring screen.

ADJ. Lever Settings

You can set the [Aspect Ratio] function in [ADJ. Lever Setting 1] to [ADJ. Lever Setting 4].

If you set the Aspect Ratio function, and press the ADJ. Lever button,  will appear, allowing you to set the aspect ratio.

[ADJ. Direct ISO Control]

When [ADJ. Direct ISO Control] is set to [On], you can push the ADJ. lever sideways when shooting is possible to change the ISO setting. The default setting is [Off].

[Set Fn1/Fn2 Buttons]

[Enlrg Display], [Focus Assist] and [Aspect Ratio] functions are added.

[Delete My Settings]

The settings registered to [My Settings Box] in [Reg. My Settings], to [Card], and to [MY1], [MY2], and [MY3] on the Mode dial return to their defaults.

[Restore Defaults]



The key custom settings will be reset.



Note -----

Settings set in [Reg. My Settings] will not be reset.

[Zoom Button]

You can select from [Off], [Digital Zoom], [Exposure Compensation], or [White Balance] for the functions assigned to the / buttons.

Setup Menu

[ISO Auto-High Settings]

You can set the upper limits for the ISO setting and the shutter speed for switching the ISO setting when [ISO Setting] is set to [Auto-Hi].

[Digital Zoom Image] Setting

The size of the recorded image varies depending on the auto resize zoom, as follows.

Zoom ratio	Image size (pixels)	Zoom ratio	Image size (pixels)
Approx. 1.0×	L	Approx. 1.8×	3M
Approx. 1.2×	M	Approx. 3.0×	1M
Approx. 1.5×	5M	Approx. 5.9×	VGA

[Target Zoom Play]

With Enlarged Display in playback mode, you can zoom in on the image centered at the position to which the camera was shifted by target shift during shooting.

Changing [Operation Sounds]

[Shutter Sounds] goes off in [M-Cont Plus (High)]. The shutter sound does not go off when a mechanical shutter or [Electronic shutter] in the Scene mode is used. The focus sound goes off when the exposure is locked when the shutter release button is pressed halfway down.

[Zoom Display Release]

You can select whether to maintain or cancel the enlarged view after shooting pictures in Enlarged View mode. Selecting [Off] maintains Enlarged View mode and [On] cancels it after pictures are shot.

[Focus assist selection]

When [Focus Assist] is set to [On] in the shooting menu, you can select [MODE1] or [MODE2].

MODE1: Shape outlines for subjects/objects in focus are enhanced.

MODE2: The picture display switches to black and white, and the area in focus glows in white.

Specifications

Specifications are given for the lens mount unit mounted on a GXR body.

Effective pixels		Approximately 12.3 million
Image sensor		23.6 mm × 15.7 mm CMOS (total pixels: approx. 12.9 million)
Zoom		4.0× digital zoom (photographs), 3.6 × digital zoom (movies); approx. 5.9× auto resize zoom (VGA)
Focus mode		MF
Shutter speed	Photographs	1/4000 – 180 s, B (Bulb), T (Time) (upper and lower limits vary according to shooting and flash mode) Flash synchronized maximum shutter speed : 1/180 s
	Movies	1/2000 – 1/30 s
Exposure control	Metering	TTL-CCD metering in multi (256-segment), center-weighted, and spot modes with autoexposure lock
	Mode	Aperture priority AE, manual exposure, move target function
	Exposure compensation	Manual (+4.0 to -4.0 EV in increments 1/3 EV or 1/2 EV), auto bracketing (-2 EV to +2 EV in increments 1/3 EV or 1/2 EV)

Exposure link range (Auto shooting mode, Center-weighted light metering)		With use of a standard lens (F2.5): 1.2 EV to 13.2 EV (link range for automatic ISO converted based on the EV for ISO 100)
ISO sensitivity (Standard Output Sensitivity)		Auto, Auto-Hi, ISO-LO, ISO 200, ISO 250, ISO 320, ISO 400, ISO 500, ISO 640, ISO 800, ISO 1000, ISO 1250, ISO 1600, ISO 2000, ISO2500, ISO 3200
White balance mode		Auto, Multi-P AUTO, Outdoors, Cloudy, Incandescent Lamp1, Incandescent Lamp2, Fluorescent Lamp, Manual, Detail; white balance bracketing
Flash	Flash output adjustment	TTL flash, manual flash, ambient light automatic (function available only with the external flash GF-1)
	Guide number	9.6 (equivalent: ISO 200) 6.8 (equivalent: ISO 100)
	Exposure angle	from 24 mm (equivalent: 35 mm)
	Timing	Front/rear curtain sync
	Other	Compatible with the external flash GF-1

Shooting mode		Auto, program shift, aperture priority, shutter priority, manual, scene (movie, portrait, sports, landscape, nightscape, skew correction, Miniaturize, High Contrast B&W, Soft Focus, Cross Process, Toy Camera, Electronic shutter), My Settings
Continuous mode	Number of pictures shot in Continuous (Picture Size: RAW)	Noise Reduction off or on (Weak): 4 pictures Noise Reduction on (Strong): 3 pictures Noise Reduction on MAX: 3 pictures
	Number of pictures shot in M-Cont Plus (1 set)	HI (1280 × 856) : 30 pictures (24 Frames/Sec) LO (4288 × 2848) : 15 pictures (3 Frames/Sec)
Compression *1		FINE, NORMAL, RAW (DNG) *2
Image size (pixels)	Photographs	4288 × 2416, 3776 × 2832, 4288 × 2848, 2848 × 2848, 3456 × 1944, 3072 × 2304, 3456 × 2304, 2304 × 2304, 2592 × 1944, 2048 × 1536, 1280 × 960, 640 × 480
	Movies	1280 × 720, 640 × 480, 320 × 240

File size (approx.)	RAW	16:9	NORMAL: 17,800 KB/frame, FINE: 19,515 KB/frame, VGA: 15,587 KB/frame
		4:3	NORMAL: 18,387 KB/frame, FINE: 20,157 KB/frame, VGA: 16,124 KB/frame
		3:2	NORMAL: 20,946 KB/frame, FINE: 22,967 KB/frame, VGA: 18,337 KB/frame
		1:1	NORMAL: 13,991 KB/frame, FINE: 15,333 KB/frame, VGA: 12,273 KB/frame
	L	16:9	NORMAL: 2,222 KB/frame, FINE: 3,816 KB/frame
		4:3	NORMAL: 2,315 KB/frame, FINE: 3,960 KB/frame
		3:2	NORMAL: 2,615 KB/frame, FINE: 4,493 KB/frame
		1:1	NORMAL: 1,761 KB/frame, FINE: 3,009 KB/frame
	M	16:9	NORMAL: 1,475 KB/frame, FINE: 2,509 KB/frame
		4:3	NORMAL: 1,574 KB/frame, FINE: 2,662 KB/frame
		3:2	NORMAL: 1,744 KB/frame, FINE: 2,968 KB/frame
		1:1	NORMAL: 1,186 KB/frame, FINE: 2,003 KB/frame
	5M	4:3	FINE: 2,287 KB/frame
	3M	4:3	FINE: 1,474 KB/frame

File size (approx.)	1M	4:3	FINE: 812 KB/frame
	VGA	4:3	FINE: 197 KB/frame
Battery life (based on CIPA standard)			DB-90: approx. 330 shots *3 (Based on CIPA guide line)
Dimensions (W×H×D)			<p>Lens mount unit only: 79.1 mm (w) × 60.9 mm (h) × 40.5 mm (d) (Based on CIPA guide line)</p> <p>When mounted on the camera body: 120 mm (w) × 70.2 mm (h) × 45.7 mm (d) (Based on CIPA guide line)</p> <p>Flange back: 27.8 mm</p>
Weight (approx.)			<p>Lens mount unit only: 170 g</p> <p>When mounted on the camera body: 370 g (Including the battery and SD memory card)</p>
Operating temperature			0°C to 40°C
Operating humidity			90% or less
Storage temperature			-20°C to 60°C

- *1 The options available vary with image size.
- *2 A JPEG file is also recorded (the JPEG file may be a FINE- or NORMAL-quality file with the dimensions as the RAW file or a VGA file 640 × 480 pixels in size). RAW files use the standard DNG format promoted by Adobe Systems, Inc.
- *3 For reference only; actual number of shots varies greatly according to how camera is used. We recommend that you carry spare batteries when in use for extended periods.

Internal Memory/Memory Card Capacity

The following values are given as a reference of the storage capacity of the internal memory and memory cards of various sizes, by picture quality and image size, when using the FINE picture quality.

Photographs

Compression	Image size (pixels)	Internal memory	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
RAW* FINE	4288 × 2416	4	49	100	197	404	810	1625
	3776 × 2832	4	47	97	191	391	784	1573
	4288 × 2848	3	42	85	168	343	688	1380
	2848 × 2848	5	63	128	251	513	1029	2065

Compression	Image size (pixels)	Internal memory	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
L FINE	4288 × 2416	21	235	476	935	1912	3830	7684
	3776 × 2832	20	227	462	907	1854	3715	7453
	4288 × 2848	18	200	407	799	1633	3272	6565
	2848 × 2848	27	299	608	1195	2442	4893	9815
M FINE	3456 × 1944	32	357	724	1419	2902	5814	11662
	3072 × 2304	30	337	683	1341	2741	5491	11014
	3456 × 2304	27	302	614	1206	2466	4941	9913
	2304 × 2304	41	447	903	1774	3627	7267	14578
5M/FINE	2592 × 1944	34	373	758	1490	3045	6101	12238
3M/FINE	2048 × 1536	53	581	1182	2321	4744	9503	19063
1M/FINE	1280 × 960	96	1059	2118	4160	8505	17039	34181
VGA/FINE	640 × 480	395	4316	8778	17237	35231	70579	141581

* When [RAW] is selected, this is the compression used for the JPEG copy.

Movies

Image size (pixels)	Internal memory	1 GB	2 GB	4 GB	8 GB	16 GB	32 GB
1280×720 24 frames/second	21sec.	3min. 49sec.	7min. 46sec.	15min. 58sec.	31min. 10sec.	62min. 26sec.	125min. 15sec.
640×480 24 frames/second	1min.	11min. 2sec.	22min. 27sec.	46min. 10sec.	90min. 7sec.	180min. 32sec.	362min. 9sec.
320×240 24 frames/second	2min. 25sec.	26min. 24sec.	53min. 43sec.	110min. 27sec.	215min. 35sec.	431min. 52sec.	866min. 19sec.



Caution

The maximum uninterrupted recording size for a single movie is 4 GB. The maximum recording time is around 15 minutes at 1280×720 size, around 46 minutes at 640×480 size, and around 90 minutes at 320×240 size.



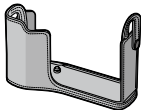
Note

When recording movies with the movie size set to 1280×720, using SD/SDHC memory cards with a speed class of 6 or more is recommended.

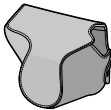
Appendices

Optional Accessories

The Lens mount unit can be used with the items (sold separately) listed below.



Body cover
+ neck strap
(SC-75B)



Unit cover
(SC-75T)



Note

- Before using an optional accessory, see the documentation that came with the product.
- For the latest information on optional accessories, visit the Ricoh website (<http://www.ricohpmmc.com/>).

Precautions for Use

- The warranty supplied with this product is only valid within the country of purchase.
- Should the product fail or malfunction while out of the country, the manufacturer assumes no responsibility for servicing the product locally or bearing any expenditure incurred thereby.
- Do not drop the equipment or subject it to physical shocks.
- When carrying the equipment, be careful that it does not strike other objects. Particular care is required to protect the lens.
- When attaching a filter or lens hood, be careful not to apply excessive force.
- Abrupt changes in temperature may cause condensation, resulting in visible condensation inside the lens or malfunction of the equipment. This can be avoided by placing the equipment in a plastic bag to slow the temperature change, and removing it only after the air in the bag has reached the same temperature its surroundings.

- Do not touch the image sensor.
- Keep the equipment dry and avoid handling it with wet hands. Failure to observe these precautions could result in malfunction of the equipment or electric shock.
- Keep the connector clean.



Tip: Avoiding Condensation -----

Condensation is particularly likely to occur if you move to an area with a sharply different temperature, if humidity is high, in a cold room after the heater has come on, or where the camera is exposed to cold air from an air conditioner or other device.

Equipment Care and Storage

Caring for the Equipment

- Photographs can be affected by fingerprints and other foreign matter on the lens. Avoid touching the lens with your fingers. Remove dust or lint with a blower from a camera supply store, or gently clean the lens with a soft, dry cloth. Be especially careful around the barrel.
- Clean the equipment thoroughly after using it at the beach or handling cosmetics. Do not expose the equipment to volatile substances such as thinner, benzene, or pesticides. Failure to observe this precaution could result in damage to the equipment or its finish.
- In the unlikely event of malfunction, visit a Ricoh Repair Center.
- This equipment is a high precision device. Do not disassemble.

Storage

- Do not store the camera where it will be exposed to: extreme heat or humidity; large changes in temperature or humidity; dust, dirt, or sand; severe vibration; prolonged contact with chemicals, including mothballs and other insect repellent, or with vinyl or rubber products; strong magnetic fields (for example, in the vicinity of a monitor, transformer, or magnet).
- When storing, place the product in a camera case, etc. that does not collect dirt or fluff to prevent dirt or dust from attaching itself to the camera. In addition, when carrying the camera, do not place the camera directly into a pocket, etc., in order to prevent dirt and dust from getting on the camera.

Warranty and Servicing

1. This product is backed by a limited warranty. During the warranty period mentioned in the Warranty supplied with your equipment, any defective parts will be repaired free of charge. In the event of equipment malfunction, contact the dealer from which you purchased the equipment or your nearest Ricoh Repair Center. Please note that you will not be reimbursed for the cost of bringing the equipment to the Ricoh Repair Center.
2. This warranty does not cover any damage resulting from:
 - 1 failure to follow the instructions in the instruction manual;
 - 2 repair, modification or overhaul not conducted by an authorized service center listed in the instruction manual;
 - 3 fire, natural disaster, act of God, lightning, abnormal voltage, etc.;
 - 4 improper storage (noted in the "Camera Body User Guide"), leaking of battery and other fluids, mold, or otherwise insufficient care of the equipment.
 - 5 submergence in water (flooding), exposure to alcohol or other beverages, infiltration of sand or mud, physical shock, dropping of the equipment, or pressure on the equipment, and other unnatural causes.

3. After the warranty period has passed, you will be liable for all repair fees, including those incurred at an authorized service center.
4. You will be liable for all repair fees, even within the warranty period, if the warranty card is not attached or if the distributor's name or the purchase date have been changed or are not indicated on the card.
5. Expenses for overhaul and thorough inspection by special request of the customer will be charged to the customer, whether or not they are incurred during the warranty period.
6. Any consequential damages arising from failure of the equipment, such as expenses incurred in taking pictures or loss of expected profit, will not be reimbursed whether they occur during the warranty period or not.
7. The warranty is only valid in the country in which the equipment was purchased.
 - * The above provisions refer to repairs offered free of charge, and do not limit your legal rights.
 - * The intention of the above provisions is also described in the warranty card provided with this equipment.

8. Parts essential to the servicing of the equipment (that is, components required to maintain the functions and quality of the equipment) will be available for a period of five years after the equipment is discontinued.
9. Please note that if the equipment is seriously damaged by flooding, submergence, infiltration of sand or mud, violent shocks or dropping, it may not be repairable, and restoration to its original condition may be impossible.



Notes-----

- Before sending the camera in for repair, check the camera body and read the instruction manual again to ensure proper operation.
- Some repairs require a significant amount of time to complete.
- When sending the equipment to a service center, please include a note which describes the defective part and the problem as precisely as possible.
- Remove all accessories not related to the problem before sending the camera to the service center.

If You Encounter a Problem with This Product

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