

Panasonic



LUMIX

S1R | S1
AF Guidebook

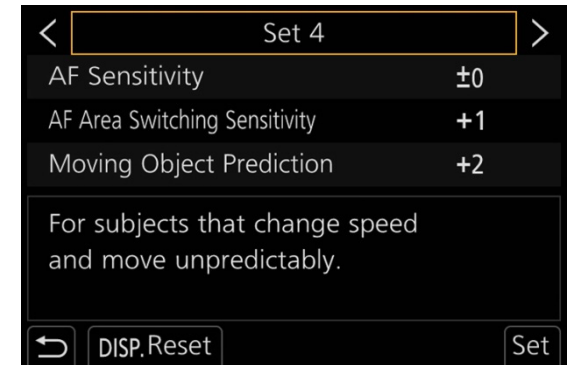
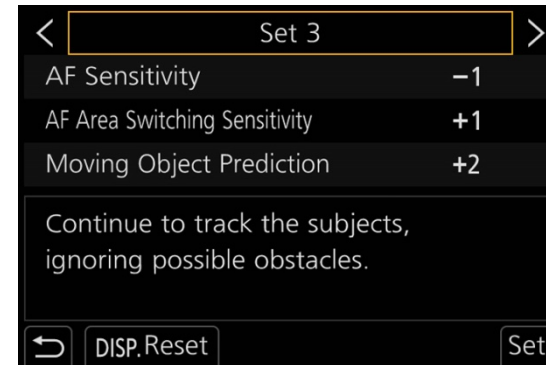
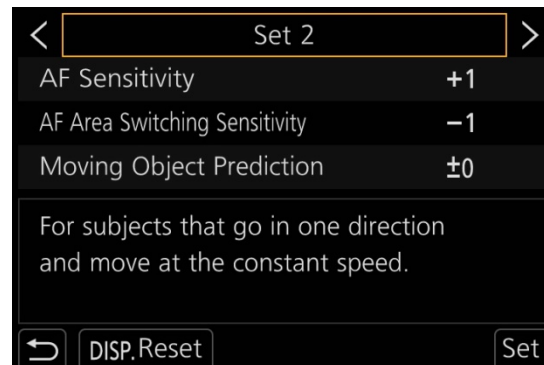
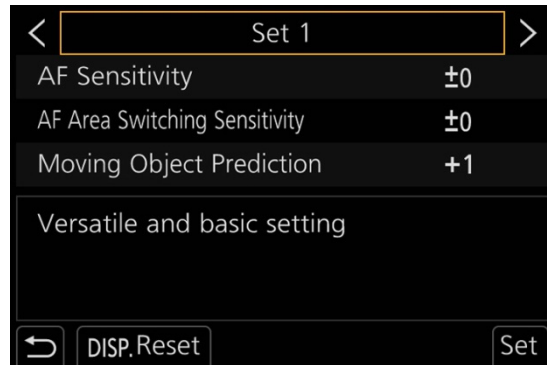


AF Custom Setting	<ul style="list-style-type: none"> • AF Custom Setting 04 • Set 1 05 • Set 2 06 • Set 3 07 • Set 4 08 • What Is AF Sensitivity ? 09 • What Is AF Area Switching Sensitivity ? 10 • What Is Moving Object Prediction ? 11
AF Settings for Each Type of Scene	<ul style="list-style-type: none"> • Scene Type 1 : Basic Situations 13 • Scene Type 2 : Airplane / Train 14 • Scene Type 3 : Group Sports 15 • Scene Type 4 : Car Race / Bike Race 16 • Scene Type 5 : Wildlife 17 • Scene Type 6 : Portraits 18 • Scene Type 7 : Low Light Situations 19
Wide Range of Possibilities	<ul style="list-style-type: none"> • Wide Range of Possibilities 21 • [1] Focus Mode 22 • [2] Auto Focus Mode 23 • [3] Focus Assist Functions 27 • [4] Intuitive Button Control 31 • [5] Logical, Speedy Menu System 34 • [6] Custom Settings 35 • [7] Touch Functions 37
Introduction to LUMIX AF Technologies	<ul style="list-style-type: none"> • Overall LUMIX System Advantages 39 • Lens : Double Focus System / Ultrasonic Assist System 40 • Recognition Technology 42 • How the DFD AF Works 43 • Recognition Function with Deep Learning Technology 44 • Low Light AF 45 • Summary 46

AF Custom Setting

AF Custom Setting

Customizing AF directivity to match the situation



Set 1
Highly versatile basic settings.
AF Sensitivity [0] AF Area Switching Sensitivity [0] Moving Object Prediction [+1]
<ul style="list-style-type: none"> Children Ballet Horseback riding Bicycle and etc.
➤ Page 05

Set 2
For subjects that go in one direction and move at a constant speed.
AF Sensitivity [+1] AF Area Switching Sensitivity [-1] Moving Object Prediction [0]
<ul style="list-style-type: none"> Airplane / Train Motorcycle racing (from the front) Athletics (Sprint) Hawk / Eagle Dog / Cheetah and etc.
➤ Page 06

Set 3
Continues to track the main subjects even when obstacles appear.
AF Sensitivity [-1] AF Area Switching Sensitivity [+1] Moving Object Prediction [+2]
<ul style="list-style-type: none"> Football / Rugby / Basketball Breaststroke / Butterfly Tennis / Badminton Surfing Dance and etc.
➤ Page 07

Set 4
For subjects that change speed and move unpredictably.
AF Sensitivity [0] AF Area Switching Sensitivity [+1] Moving Object Prediction [+2]
<ul style="list-style-type: none"> Motorcycle racing / Motocross Skateboard / Rollerblade Boat racing / Canoeing Athletics (Cornering) Horse racing and etc.
➤ Page 08

Set 1

Set 1

AF Sensitivity [0]
AF Area Switching Sensitivity [0]
Moving Object Prediction [+1]

This is the basic setting with high versatility.

It is applicable to a variety of movements and makes it possible to take get stable results under various conditions.

This setting is recommended for most scenes when taking photos of moving subjects.

This is the camera’s default setting.



Typical Subjects	■ Children	: Whole body. Playing or running.
	■ Ballet	: Whole body. Gentle movements.
	■ Horseback riding	: Whole body. Trotting.
	■ Bicycle	: Whole body. From the front.

Set 2

Set 2

AF Sensitivity [+1]
AF Area Switching Sensitivity [-1]
Moving Object Prediction [0]

This setting is for subjects that go in one direction and move at a constant speed. It is effective in situations where no obstacles will appear between the subject and the camera, the subject fits into the AF area, and framing is relatively easy.

- **AF Sensitivity [+1]**
This makes it easy to capture subjects. When it is difficult to keep the main subject in the center of the AF area, for example with handheld shooting, set the AF area to be wider, or reset the AF Sensitivity to [0] to match the situation.
- **Moving Object Prediction [0]**
Setting the Moving Object Prediction to [0] makes it easy to capture subjects moving in one direction.



Typical Subjects	■ Airplane	: Takeoff and landing. From the front.
	■ Train	: From the front.
	■ Motorcycle racing	: From the front.
	■ Athletics	: Sprint. From the front.
	■ Hawk / Eagle	: Enlarged in center. From the front.
	■ Dog / Cheetah	: Enlarged in center. From the front.

Set 3

Set 3

AF Sensitivity [-1]
AF Area Switching Sensitivity [+1]
Moving Object Prediction [+2]

The main subjects continue to be tracked even when obstacles appear or the subjects move out of the AF area.

This setting is recommended, for example, when shooting sports action where the subjects move quickly, the subjects move out of the AF area during handheld shooting, other players cross in front of the subjects, or obstacles enter the frame.

■ **AF Sensitivity [-1]**
With this setting, the focus strongly persists. In situations such as doing the butterfly stroke when swimming, where the subject's face is often hidden from view, the focus remains in the initial position, preventing it from moving to the background, to continue shooting the main subjects.

■ **AF Area Switching Sensitivity [+1]**
This is effective for movements that greatly change the position within the frame.

■ **Moving Object Prediction [+2]**
This copes with situations where the subject suddenly stops moving or changes direction. It is effective, for example, in a soccer match to keep surrounding players inside the frame while clearly capturing the player who has the ball.



Typical Subjects	■ Football / Rugby / Basketball	: The ball and one player.
	■ Breaststroke / Butterfly	: Competition where swimmers go temporarily under the water.
	■ Dance	: One dancer in a group. One couple in a dance competition.
	■ Equestrian	: Show jumping.
	■ Tennis / Badminton	
	■ Surfing	

Set 4

Set 4

AF Sensitivity [0]
AF Area Switching Sensitivity [+1]
Moving Object Prediction [+2]

This setting quickly focuses on subjects that move unpredictably while changing speed.

This is recommended for shooting cornering action in motor sports. It is helpful, for example, to clearly capture subjects whose movements are difficult to predict due to sudden starts, stops, and speed changes.

■ AF Area Switching Sensitivity [+1]
This is effective for movements where the position changes greatly within the frame.

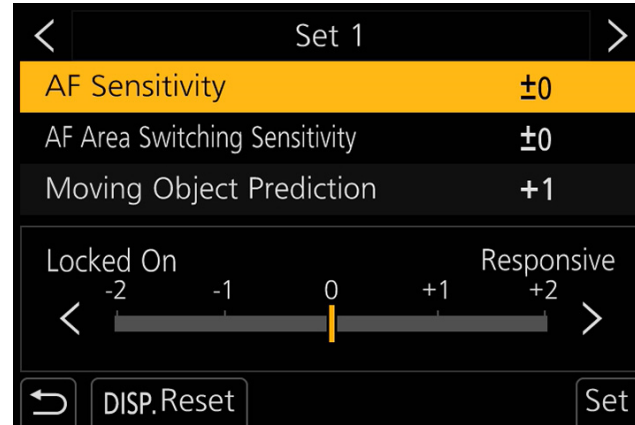
■ Moving Object Prediction [+2]
This copes with situations where the subject suddenly stops moving or changes direction. It can be used for scenes where the subject jumps on a skateboard or rollerblade, or corners in a motor sport.



Typical Subjects	■ Motorcycle racing / Motocross	: Cornering.
	■ Skateboard / Rollerblade	
	■ Boat racing	: Cornering.
	■ Canoeing	
	■ Athletics	: Cornering.
	■ Horse racing	: Cornering.

What Is “AF Sensitivity” ?

This sets the “AF tracking sensitivity” for AF subject tracking in scenes where an obstacle enters or the subject is temporarily hidden from view.



- Locked On

Refocusing is not done immediately when the main subjects leave the AF area.

The focus does not shift when an obstacle crosses in front of the subject. For example, once a swimmer is focused on, the focus will not shift to the water's surface or the background if the swimmer dives into the water. This setting lets you wait for the swimmer to reappear.

Using about 0.5 seconds as a guideline, if the subject does not reappear by then, try a minus setting.

0

Set to an appropriate time for refocusing.

Even if the subject leaves the AF area due to slight hand shake or reframing, focusing waits for an appropriate amount of time so it does not shift to the background. The same subject can be tracked while slightly revising the framing.

In many situations, an ample AF result can be achieved by setting the AF Sensitivity to [0].

+ Responsive

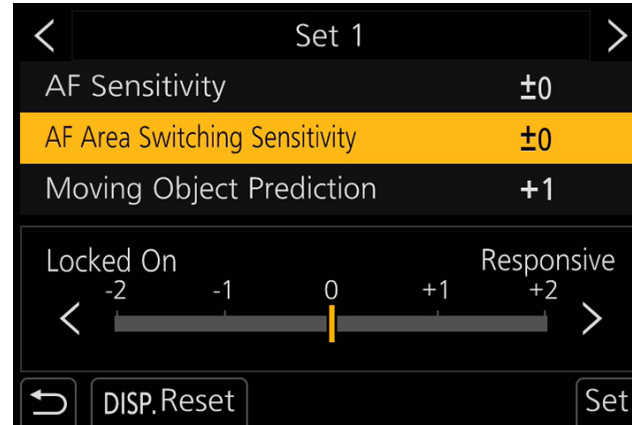
When the main subject leaves the AF area, another subject in that position is immediately brought into focus.

Subjects can be captured one after the other at a good tempo. This is convenient, for example, when you want to focus on each of the riders in a motorcycle race.

You can keep capturing the subjects in the AF area, and if you want to change from subject to subject while burst shooting, you can try setting AF Sensitivity to plus.

What Is “AF Area Switching Sensitivity” ?

This enables you to set the AF area switching characteristics for subjects moving around the frame.



- Locked On

If a subject that you want to capture leaves the AF area, you can wait until the subject returns.

This prioritizes the set area position over the subject. While trying not to switch the AF area as much as possible, the camera focuses on the subject in the AF area position that was initially focused on.

0

This setting uses the camera's AF calculations for the main subject and the depth of field in the vicinity to focus and shoot.

In many situations, an ample AF result can be achieved by setting the AF Area Switching Sensitivity to [0].

+ Responsive

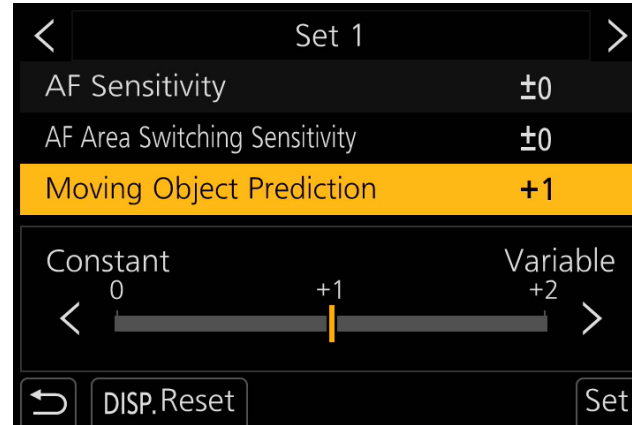
If the subject that you want to capture has left the AF area, try actively switching to a surrounding AF area to track a subject even if it is outside the current AF frame.

The subject is recognized and AF tracking is matched to its movement.

By setting the AF Area Switching Sensitivity to [+2], subjects moving at a high-speed from the center of the frame to the edge are also subject to AF tracking.

What Is “Moving Object Prediction” ?

When the subject's movement changes, you can set whether to match the AF operation to that movement.



0 Constant

Suited to capturing subjects moving at a constant velocity.

Subjects that move at an extremely high velocity shift considerably even in the small amount of time from focusing to actually shooting. In this difficult situation, movement is predicted in order to accurately capture the subject at the instant that the shutter is released.

Subjects that move in one direction, regardless of how quickly they move, can be brought into focus by this setting.

+1

AF tracking is possible even for subjects that move extremely quickly.

In most cases, AF tracking is possible at this setting.

+2 Variable

AF tracking is possible for subjects that move unpredictably. This is recommended for cases with sudden acceleration and sudden stops.

If the quick change of movement cannot be handled when the Moving Object Prediction is set to [+1], set it to [+2]. If changes in movement, such as sudden starts, sudden stops, and sudden acceleration, are severe, [+2] is recommended.

AF Settings for Each Type of Scene

Scene Type 1 **Basic Situations**

Focus Mode	AFC
AF Mode	Face/Eye/Body/Animal Detection
Burst Mode	H : High Speed Burst
AF Custom Setting	Set 1 ➤ Page 05
	AF Sensitivity [0]
	AF Area Switching Sensitivity [0]
	Moving Object Prediction [+1]

Use "Set 1" to capture children running in a park.

Because the Moving Object Prediction is set to [+1] by default, accurate AF tracking is possible for a variety of moving subjects.

AF tracking is possible for the running, jumping, and other natural movements of children.



Scene Type 2 Airplane / Train

Focus Mode	AFC
AF Mode	1 Area / Small
Burst Mode	H : High Speed Burst
AF Custom Setting	Set 2 ➤ Page 06
	AF Sensitivity [+1]
	AF Area Switching Sensitivity [-1]
	Moving Object Prediction [0]

Use "Set 2" to capture airplanes and trains.

Because the Moving Object Prediction is set to [0] by default, the camera predicts moving objects, making it easy to capture subjects that move in one direction, such as airplanes and trains.

Also, by setting AF Sensitivity to [+1], the targeted subjects can be accurately captured. Even with handheld shooting, if it is difficult to keep the subject within the AF area, the AF area can be widened or AF Sensitivity can be reset to [0], to adjust the scene.



Scene Type 3 Group Sports

Focus Mode	AFC
AF Mode	1 Area+ / Small
Burst Mode	H : High Speed Burst
AF Custom Setting	Set 3 ➤ Page 07
	AF Sensitivity [-1]
	AF Area Switching Sensitivity [+1]
	Moving Object Prediction [+2]

Use "Set 3" when you want to capture a specific player or the ball from a group of mingling players and referees.

This sets the AF Sensitivity to [-1], to prevent the camera from immediately refocusing if the subject is hidden by another player, so the shooting can begin after the subject reappears.

Since you cannot predict the next movement, the Moving Object Prediction is set to [+2] to capture the position instant-by-instant.



Scene Type 4 Car Race / Bike Race

Focus Mode	AFC
AF Mode	1 Area+ / Small
Burst Mode	H : High Speed Burst
AF Custom Setting	Set 4 ➤ Page 08
	AF Sensitivity [0]
	AF Area Switching Sensitivity [+1]
	Moving Object Prediction [+2]

Use "Set 4" for bike races where the subject moves randomly and the speed changes dramatically in sudden curves.

The AF Area Switching Sensitivity is set to [+1] to match the AF tracking to the subject's movement.

Because the next move is difficult to predict in scenes where the speed changes, the Moving Object Prediction is set to [+2] in order to accurately capture the position instant-by-instant.



Scene Type 5 **Wildlife**

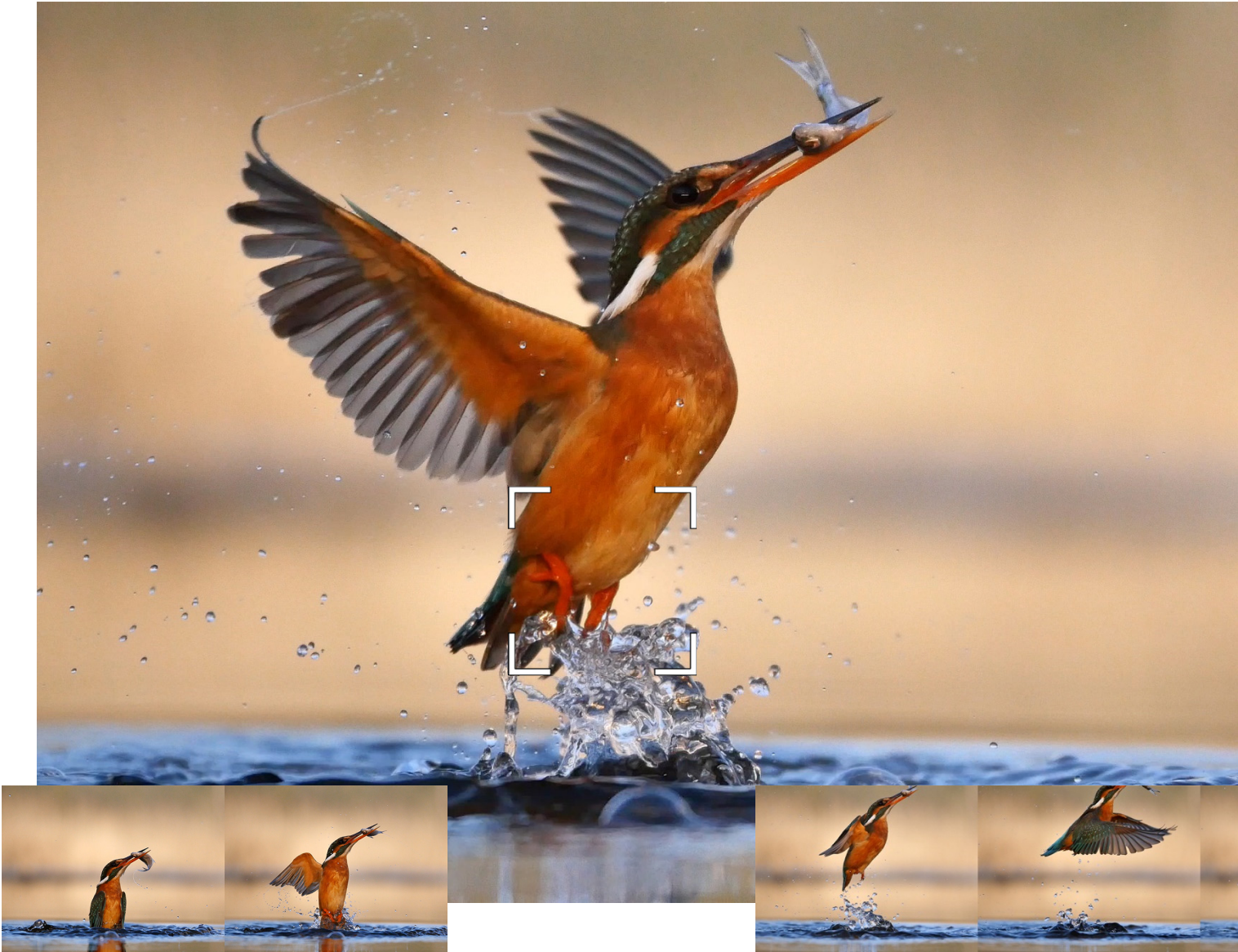
Focus Mode	AFC
AF Mode	1 Area / Middle
Burst Mode	H : High Speed Burst
AF Custom Setting	-
	AF Sensitivity [+2]
	AF Area Switching Sensitivity [+1]
	Moving Object Prediction [+2]

Wildlife often enters the frame suddenly, with unpredictable movement.

With the AF Sensitivity set to [+2], the subject can be brought into instant focus even when it suddenly enters the AF area.

With the AF Area Switching Sensitivity set to [+1], AF tracking is possible for subjects that move at high-speed inside the frame.

Since it is extremely difficult for the camera to predict the next movement for subjects that suddenly enter the frame, set the Moving Object Prediction to [+2] in order to accurately capture positions instant-by-instant.

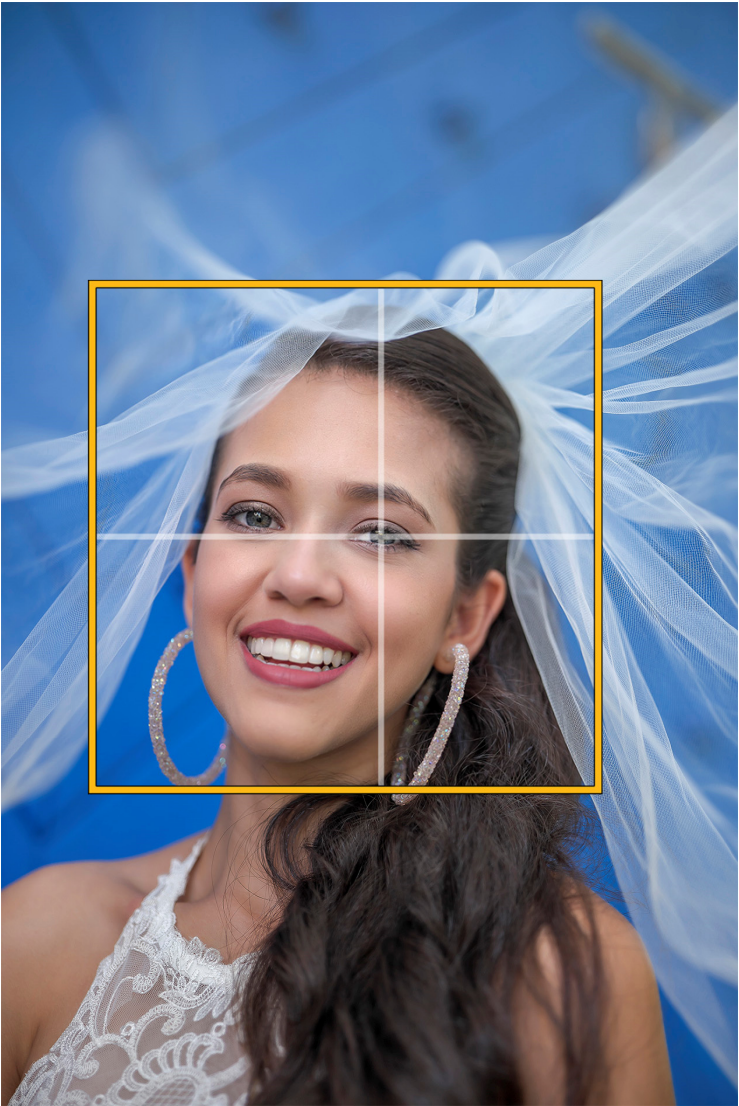


Scene Type 6 Portraits

Focus Mode	AFS
AF Mode	Face/Eye/Body/Animal Detection
Burst Mode	Single
AF Custom Setting	-
AF Sensitivity [0]	
AF Area Switching Sensitivity [0]	
Moving Object Prediction [+1]	

Naturally, LUMIX can take portraits using accurate Face/Eye Detection AF, but it can also focus when the face is hidden or the subject is facing backwards.

Deep Learning technology has greatly improved the accuracy of recognizing person. By recognizing the position or size of a person's body, focusing is possible in situations that were previously very difficult.



Pressing the joystick moves the main AF area toward the right.

Scene Type 7 Low Light Situations

Focus Mode	AFS
AF Mode	1 Area / Middle
Burst Mode	Single
AF Custom Setting	-
	AF Sensitivity [0]
	AF Area Switching Sensitivity [0]
	Moving Object Prediction [+1]

LUMIX can focus with accuracy even in dark places, such as a starlit sky.

A unique algorithm focuses in low lighting all the way down to -6EV, allowing it to focus almost down to nighttime darkness.



Wide Range of Possibilities

Wide Range of Possibilities

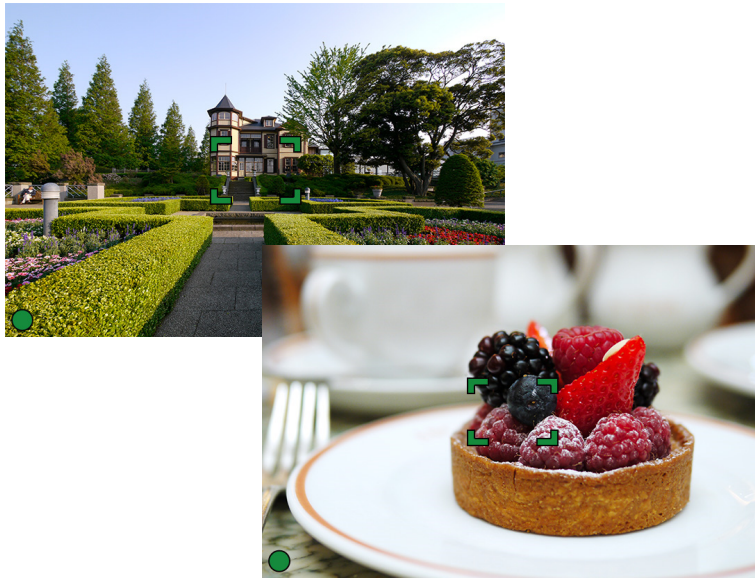
Versatile focus functions possible only with Contrast AF

You can freely customize the AF setting to match the situation.

1	Focus Mode
2	Auto Focus Mode
3	Focus Assist Functions
4	Intuitive Button Control
5	Logical, Speedy Menu System
6	Custom Settings
7	Touch Functions

[1] Focus Mode

AFS Auto Focus Single



Still Subjects

For scenery, food, etc.

The focus is fixed when the shutter button is pressed halfway.

AFC Auto Focus Continuous

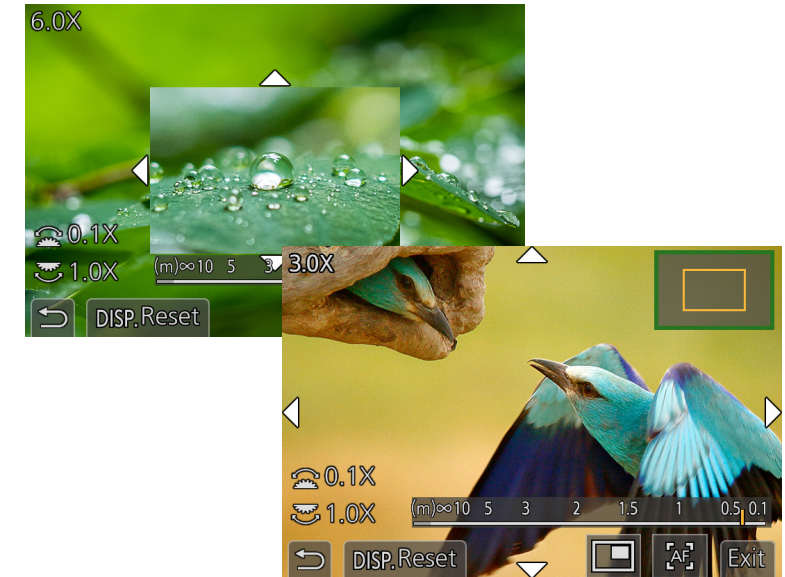


Predictable Movements

For sports, trains, etc.

Constantly performed when the shutter button is half-pressed. The camera predicts the subject position at the time of recording.

MF Manual Focus



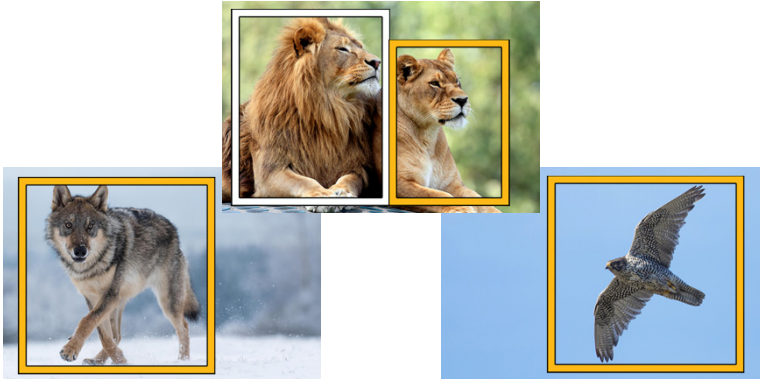
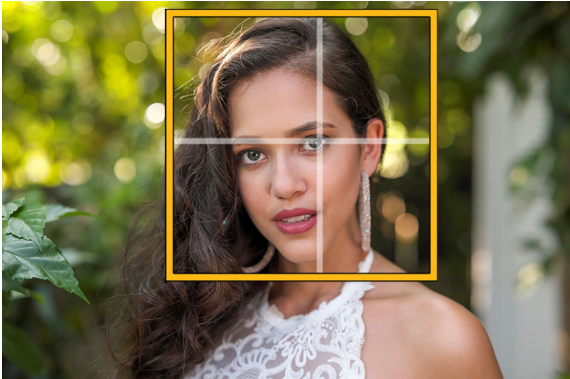
Predictable Movements

When you want to fix the focus, etc.

When you want to fix the focus on a certain focal plane decided by yourself.

[2] Auto Focus Mode 1

Face/Eye/Body/Animal Detection AF



Face/Eye Detection
The camera detects the person’s face and eyes, and chooses the optimal focus and exposure.
Applicable Situations : The camera automatically focuses on the pupil to provide sharp and clear portraits. It automatically adjusts the focus on the eye closer to the camera. The person to focus on and whether to focus on the right or left pupil can be selected using the joystick or by touch.

Human Body Detection
The camera detects the person’s whole body or upper torso and selects the optimal focus.
Applicable Situations : The human body recognition network incorporating deep learning technology enables the detection of a subject even if the person’s back is facing toward the camera. It offers high recognition performance even when shooting football games, fencing and other sports scenes where players or athletes wear protective gear on their faces as well as wedding scenes with the bride wearing a veil.

Animal Detection (Canidae, Felidae, Birds)
The camera can recognize birds and animals, such as Canidae (including wolves and others) and Felidae (including lions and others), and selects the optimal focus.
Applicable Situations : The animal recognition network incorporating deep learning technology enables the detection of animals regardless of their positions. The camera offers stable tracking performance and accurate focusing even when shooting difficult-to-photograph wild animals.

[2] Auto Focus Mode 2

Tracking AF



The camera locks on and "tracks" the subject as it moves, continuously adjusting the focus.

Applicable Situations :

- Tracking AF is activated by selecting AFC and half-pressing the shutter button.
- In addition to Tracking AF using live view images, Panasonic's original DFD and Motion Vector technologies enable tracking of even fast-moving subjects.

225-Area

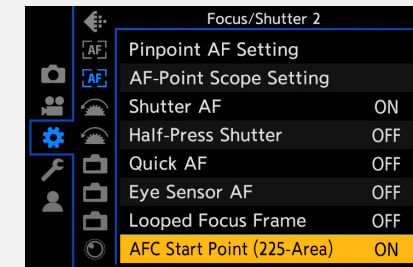


Up to 225 areas for each AF area can be focused.

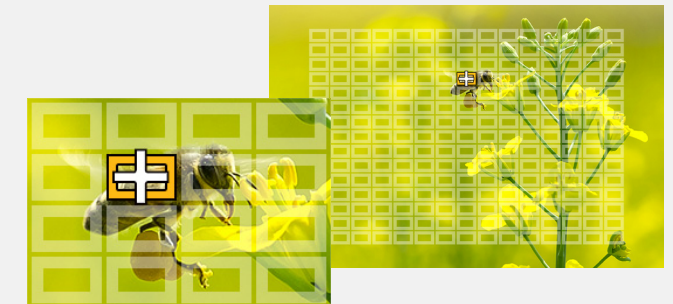
Applicable Situations :

The camera's analytical technology makes it possible to flexibly focus on the main subject. Even when it is difficult to predict the subject's motion and maintain framing, the main subject can be found in the frame and brought into focus.

The subject tracking start point can be selected in the AFC mode.



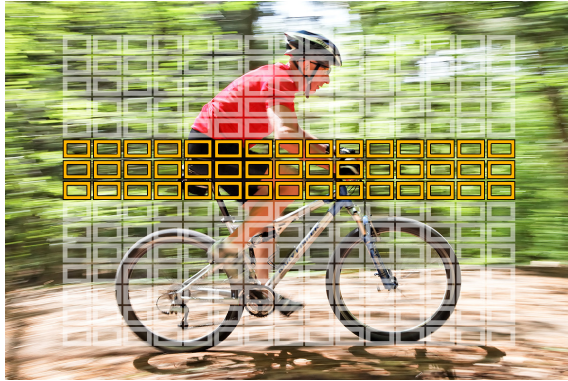
1. Turn ON [AFC Start Point (225-Area).]
2. Press the AF mode button on the back of the camera and select [225-Area] from the menu, then select [AF Area.]



3. Select and set the start position.

[2] Auto Focus Mode 3

Zone AF

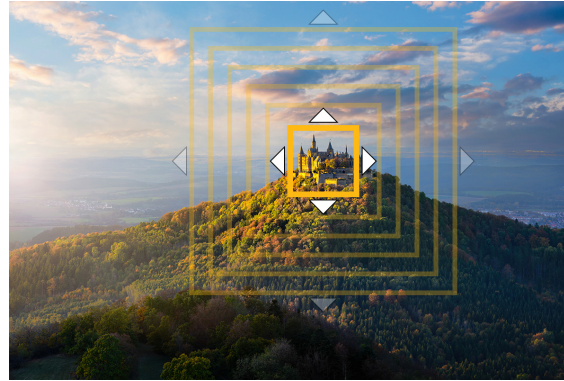


You can freely select the AF-area group for the subject among 225 AF-areas.

Applicable Situations :

- Three default settings:
Vertical/Horizontal, Square, Oval
- Up to 3 settings can be registered by custom.
Areas can be intuitively selected by touch and joystick.

1-Area AF



Focusing is possible in any part of the screen.

Applicable Situations :

- This mode is recommended when the situation allows you to frame your shots as you desire. A single target can be accurately selected from subtle differences in depth of field for accurate focusing.
- The size of the AF area can be freely set to match the subject's size and motion.

1-Area+ AF



The camera adjusts the focus using the 1-Area AF and an auxiliary AF area with twice the size of the 1-Area AF area.

Applicable Situations :

- This is recommended when you focus on a moving subject. You can first focus using the 1-Area AF, and if the subject moves out of that AF area, the focus is readjusted using the auxiliary AF area.
- The size of the AF area can be freely set to match the subject's size and motion.

[2] Auto Focus Mode 4

Pinpoint AF

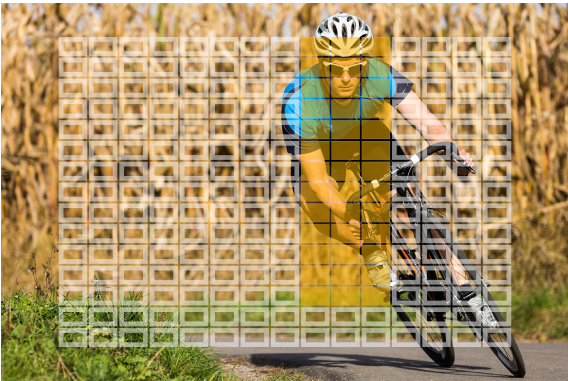


This allows more accurate focusing by further enlarging the focusing area.

Applicable Situations :

Using area smaller than 1-Area AF, the view can be enlarged up to 6 times for fine focusing.

Custom1-3



You can select desired areas from the 225-Area and register them.

Applicable Situations :

Up to 3 settings can be registered by custom. Areas can be intuitively selected by touch and joystick.

Show/Hide AF Mode

You can select modes you want to use from a maximum of 11 AF modes and display only those.

Show/Hide AF Mode 1/2

Face/Eye/Body/Animal Detect. ON

Tracking OFF

225-Area OFF

Zone (Vert./ Horz.) ON

Zone (Square) ON

Zone (Oval) ON

Show/Hide AF Mode 2/2

1-Area+ ON

Pinpoint ON

Custom1 ON

Custom2 OFF

Custom3 OFF

AF Mode

Face/Eye/Body/Animal Detect.

Animal detect OFF

AF Area

Set

[3] Focus Assist Functions 1

MF Guide



The distance indicator enables you to check the area that can be focused and the present focusing position.

MF Assist



A part of the image can be enlarged up to 6 times in a windowed screen display mode (PIP (Picture-In-Picture)).



A part of the image can be enlarged up to 20 times in a full screen display mode (FULL).

Peaking



This shows the peak of the focus .

Sensitivity can be adjusted in 5 steps.

Focus Peaking	
Focus Peaking Sensitivity	+2
Display Color	+1
Display While AFS	±0
	-1
	-2

Focus Peaking	
Focus Peaking Sensitivity	±0
Display Color	Blue
Display While AFS	ON

It can also be displayed when setting AFS.

[3] Focus Assist Functions 2

AF-ON One-shot AF

MF



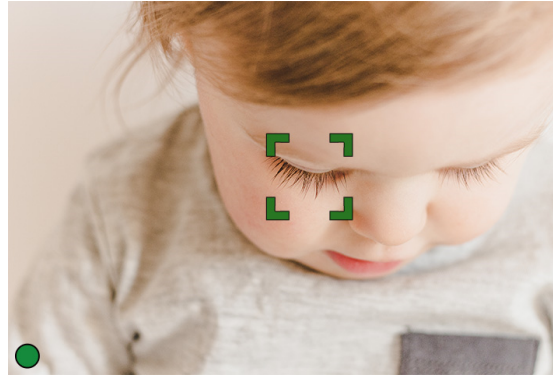
AF



Focus with AF before fine tuning with MF.

AF+MF

AF

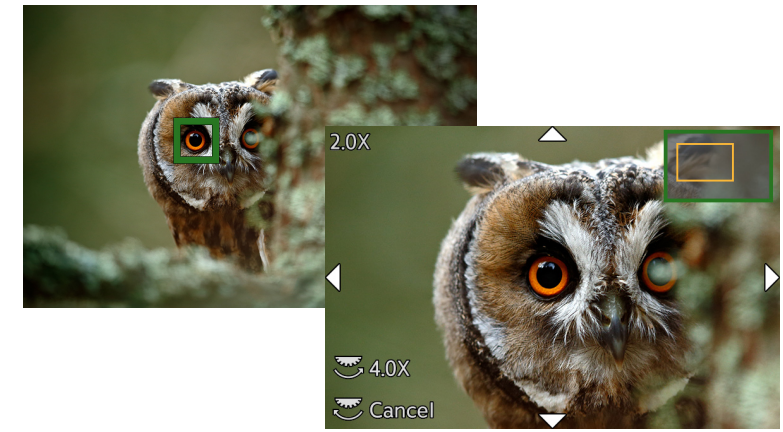
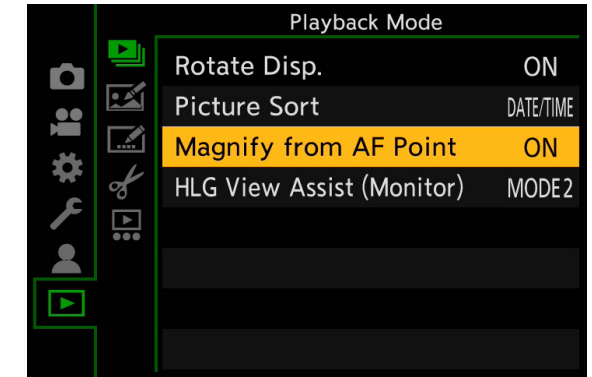


MF



Focus with AF, then fine tune with MF after AF locking.
Confirmation is possible while enlarging with MF Assist.

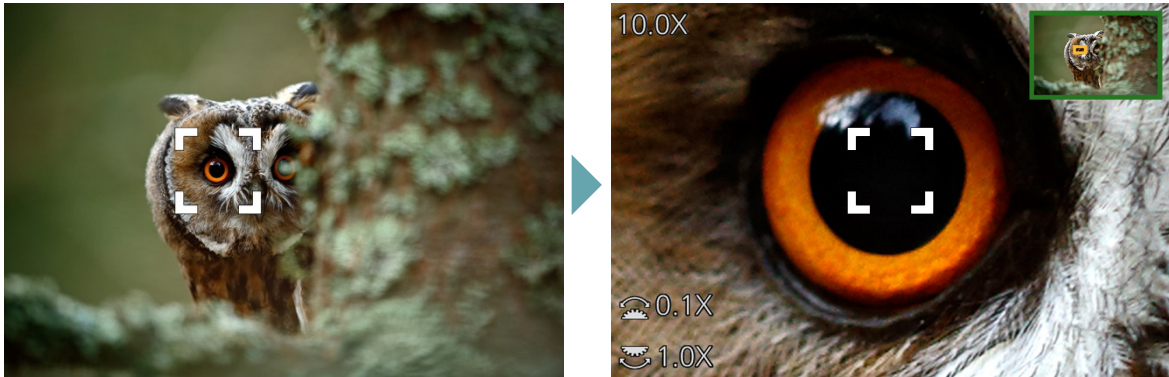
Magnify from AF Point



The AF focus point is automatically enlarged when enlarging the image.

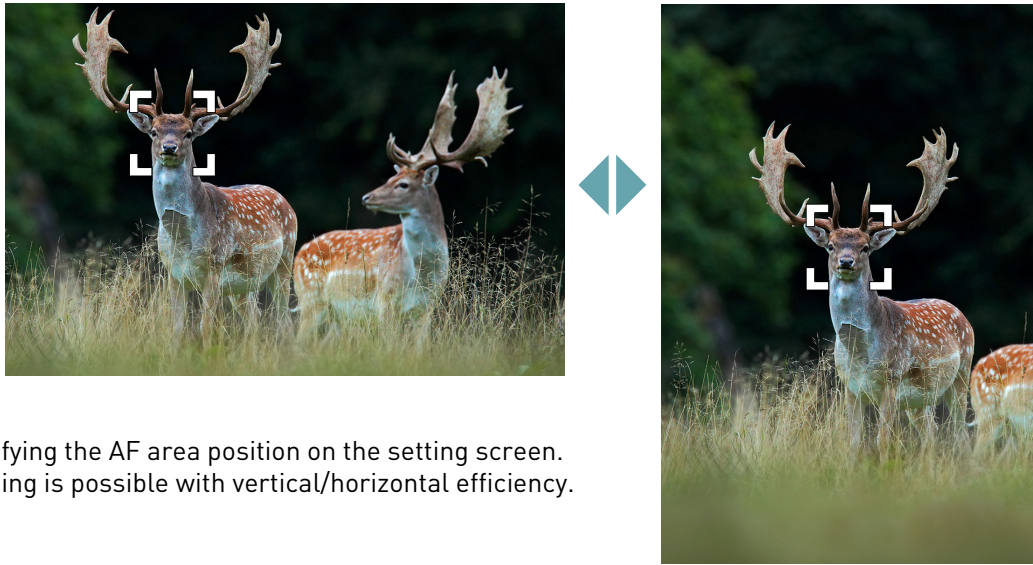
[3] Focus Assist Functions 3

AF-Point Scope

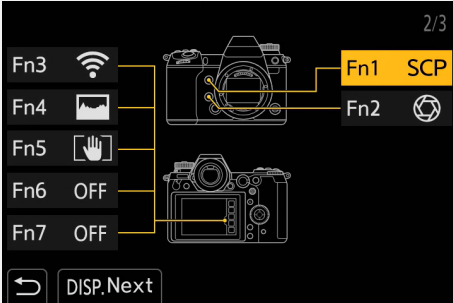


You can temporarily enlarge the view by 3-10 times to check the focus.
Refocus inside the enlarged area.

Focus Switching for Vertical / Horizontal

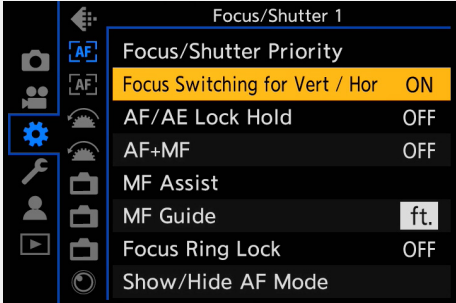


Specifying the AF area position on the setting screen.
Framing is possible with vertical/horizontal efficiency.

A diagram showing the allocation of functions to Fn buttons. It features two camera icons: a front view and a rear view. Lines connect Fn3 to Wi-Fi, Fn4 to a photo icon, Fn5 to a hand icon, Fn6 to OFF, and Fn7 to OFF. On the right, Fn1 is assigned to SCP and Fn2 to a lens icon. A 'DISP. Next' button is at the bottom left.

Setting Method

1. Allocate the function to an Fn button.
2. Press and hold the Fn button when shooting to enlarge the AF area.
3. Half-press the shutter button to refocus inside the enlarged area.

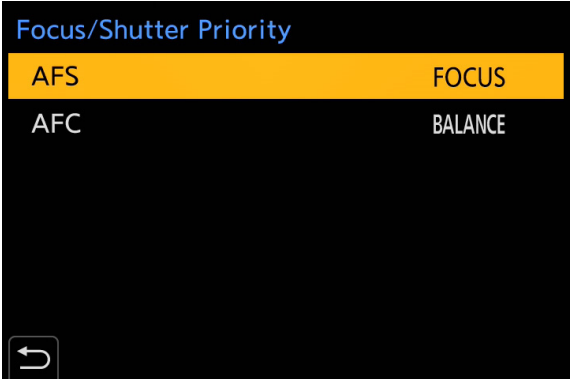
A screenshot of the camera's menu system. The 'Focus/Shutter 1' menu is open, showing 'Focus/Shutter Priority' and 'Focus Switching for Vert / Hor' set to 'ON'. Other options include 'AF/AE Lock Hold' (OFF), 'AF+MF' (OFF), 'MF Assist', 'MF Guide' (ft.), 'Focus Ring Lock' (OFF), and 'Show/Hide AF Mode'. A blue box highlights the 'Focus Switching for Vert / Hor' option.

Setting Method

1. Turn ON [Focus Switching for Vert / Hor].
2. You can set the AF area size and position for each of the horizontal and vertical positions.

[3] Focus Assist Functions 4

Focus/Release Priority



Set whether to place priority on the focus, or on the shutter release, during autofocus.

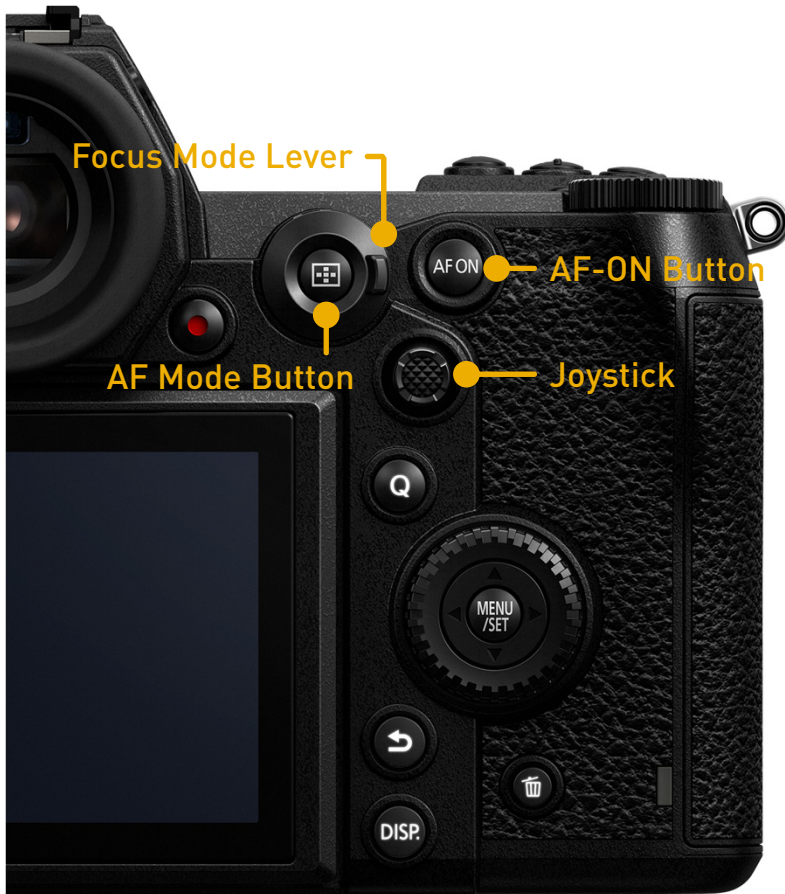
You can set [AFS] and [AFC] individually.

FOCUS	Disables recording when focus is not achieved.	<p>This setting is recommended for shooting only when focusing is proper. It is suitable for macro shooting, landscapes, etc.</p> <p>This is the default setting for [AFS].</p>
RELEASE	Enables recording even when focus is not achieved.	<p>For placing the priority on the shutter opportunity.</p> <p>It is suitable for burst shooting wild animals or sports scenes instant by instant.</p>
BALANCE	Performs recording while controlling the balance between focusing and shutter release timing.	<p>Select this when you want to prioritize the shutter opportunity, but also want to raise the possibility of proper focusing.</p> <p>This is the default setting for [AFC].</p>

[4] Intuitive Button Control 1

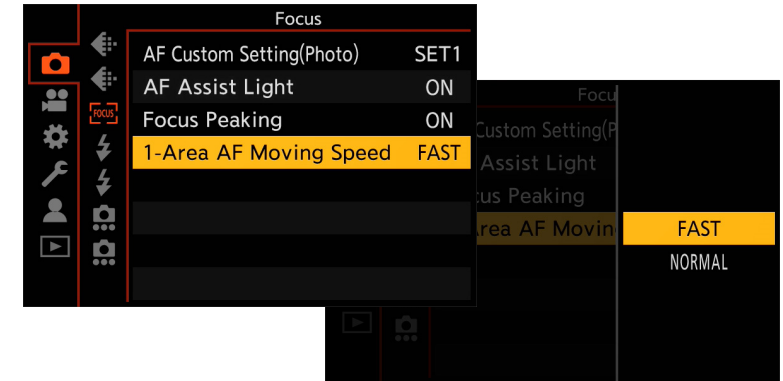
External Buttons

The external levers, buttons, and joystick controller can be used to intuitively control the focus while watching the viewfinder.



Joystick Controller

The joystick allows 8-direction control and push operation. It lets you set the focus area quickly with your thumb.



The moving speed of the 1-Area AF frame can be selected.



8-direction joystick control + 1-Area AF Moving Speed selection
⇒ The frame can be moved quickly even in a diagonal direction.

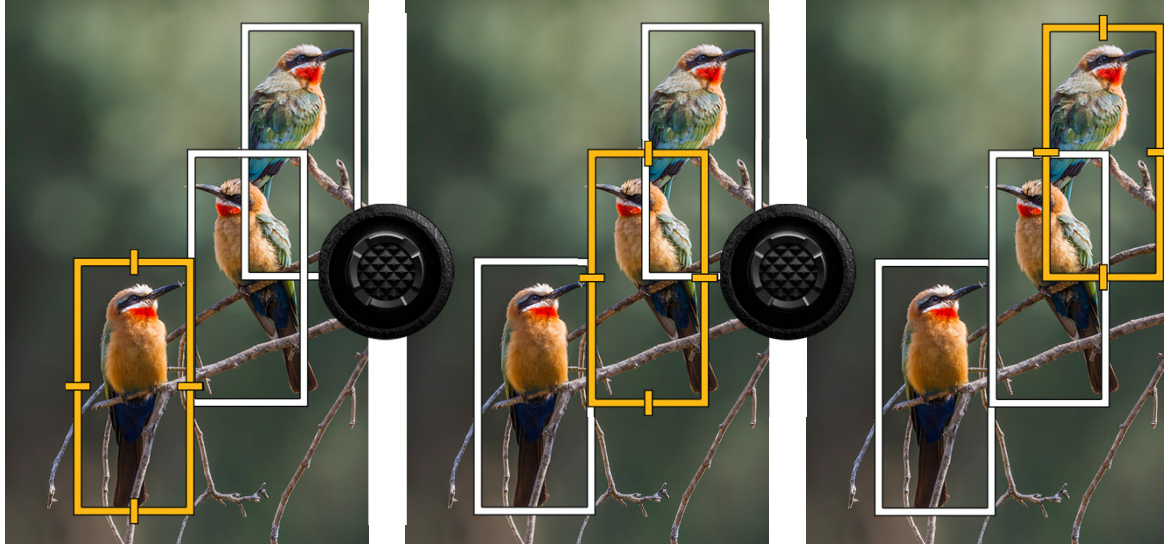
[4] Intuitive Button Control 2

Joystick Controller

The joystick allows easy camera operation. It lets you quickly shift the focus from one subject to another without taking your eyes off the viewfinder.

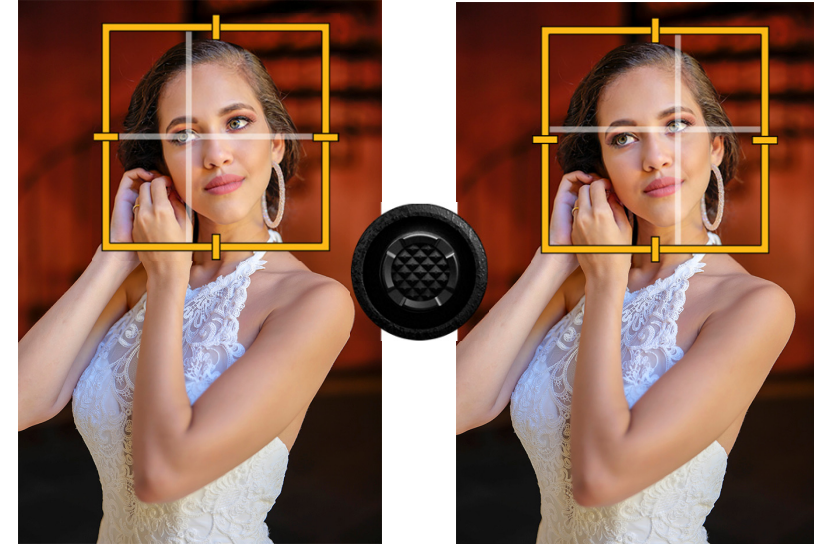
Face Detection / Human Body Detection / Animal Detection

Pressing the joystick moves the main AF area toward the right.



Face/Eye Detection

Pressing the joystick switches the focus point between the left eye and right eye.



[4] Intuitive Button Control 3

AF-ON



How to Use AF-ON

MF	Activates the AF temporarily. Press the button and focus inside the frame.
AFS AFC	You can set focus and release independently. This is convenient when you want to activate and fix the AF to match the subject's movement.

Eye Sensor AF

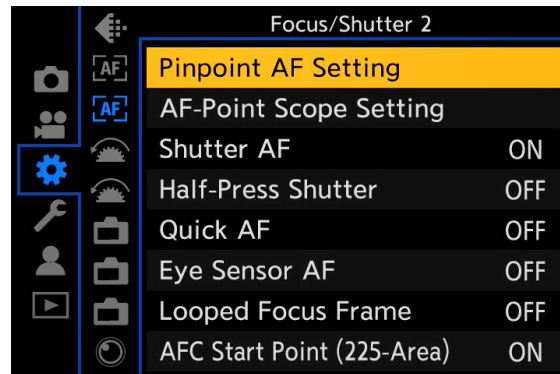
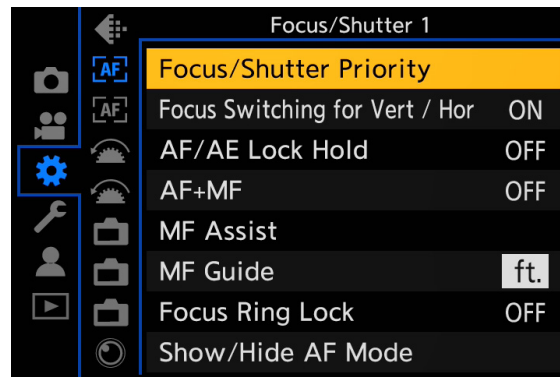


Eye Sensor AF automatically starts focusing when the user looks into the LVF to capture spur-of-the-moment shots.



[5] Logical, Speedy Menu System

Custom Menu



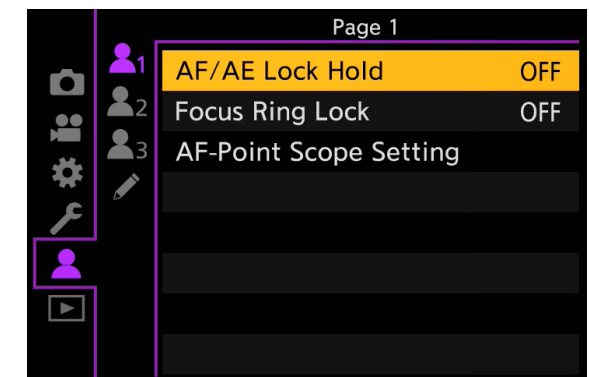
Custom Menu can be used to preset the functions suitable for a specific project in advance.

Photo/Video Menu



Settings that may be frequently changed during shooting are included in Photo/Video Menu.

My Menu



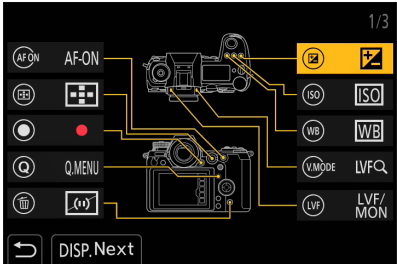
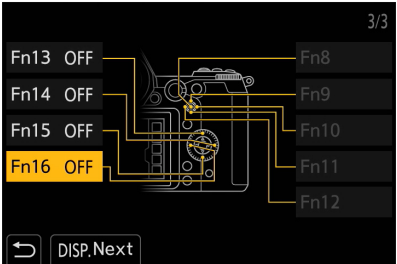
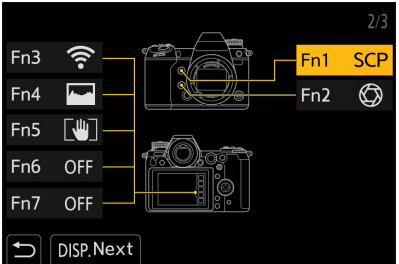
The functions you frequently use and want to access immediately can be registered in My Menu.

[6] Custom Settings 1

Camera Fn Buttons

You can allocate various functions to the Fn buttons for quick recall. This enables you to customize your camera.

■ 16 Fn Buttons + Other 10 Buttons + 1 Fn Button of Battery Grip DMW-BGS1 (sold separately)



Max. 27 Buttons

×

Max. 78 Rec Setting

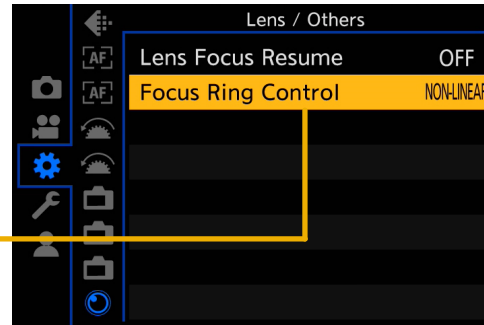
There's almost no limit to customizing!

■ Shooting functions that you can allocate.

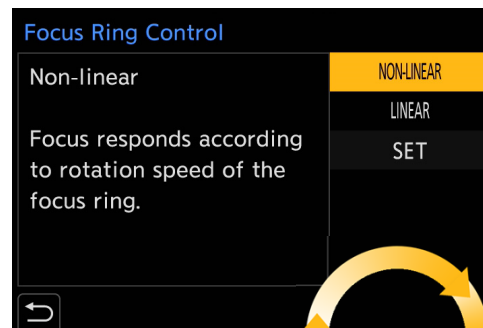
1	Exposure Comp.	14	1 Shot RAW+JPG	27	AE LOCK	40	Image Stabilizer	53	Q.MENU	66	Night Mode
2	Sensitivity	15	i.Dynamic Range	28	AF LOCK	41	Shutter Type	54	Rec/Playback Switch	67	LVF/Monitor Disp. Style
3	White Balance	16	Filter Effect	29	AF/AE LOCK	42	Ex. Tele Conv.	55	Video Record	68	Photo/Video Preview
4	Photo Style	17	One Push AE	30	AF-ON	43	Flicker Decrease (Photo)	56	LVF/Monitor Switch	69	Zebra Pattern
5	Metering Mode	18	Touch AE	31	AF-Point Scope	44	Post-Focus	57	LVF Magnification	70	HLG View Assist(Monitor)
6	Aspect Ratio	19	Exposure Mode	32	Focus Area Set	45	Motion Pic. Rec Format	58	Dial Operation Switch	71	HLG View Assist (HDMI)
7	Picture Quality	20	AF Mode/MF	33	Flash Mode	46	Motion Pic. Rec Quality	59	Preview	72	Sheer Overlay
8	Picture Size	21	AF Custom Setting(Photo)	34	Flash Adjust.	47	Sound Rec Level Disp.	60	Constant Preview	73	I.S. Status Scope
9	HLG Photo	22	AF Custom Setting(Video)	35	Wireless Flash Setup	48	Sound Rec Level Adj.	61	Level Gauge	74	Focus Ring Control
10	High Resolution Mode	23	Focus Peaking	36	Drive Mode	49	Mic. Directivity Adjust	62	Histogram	75	Zoom Control
11	1 Shot Spot Metering	24	Focus Peaking Sensitivity	37	1 Shot "6K/4K PHOTO"	50	Image Stabilizer	63	Photo Grid Line	76	Destination Card Slot
12	Long Exposure NR	25	1-Area AF Moving Speed	38	Bracketing	51	E-Stabilization (Video)	64	Live View Boost	77	Wi-Fi
13	Min. Shutter Speed	26	Focus Ring Lock	39	Silent Mode	52	Boost I.S. (Video)	65	Monochrome Live View	78	No Setting

[6] Custom Settings 2

Focus Ring Control for LUMIX S Series Lenses (S-R24105 / S-X50 / S-R70200)

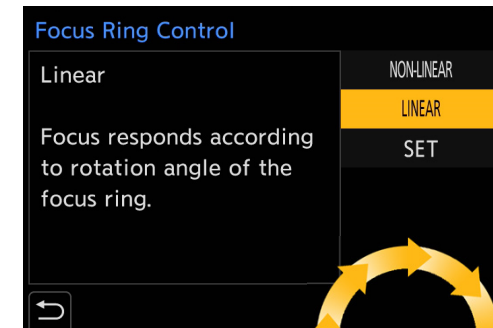


You can set the coordination between the focus ring operation and the amount of focus movement when using supported lenses.



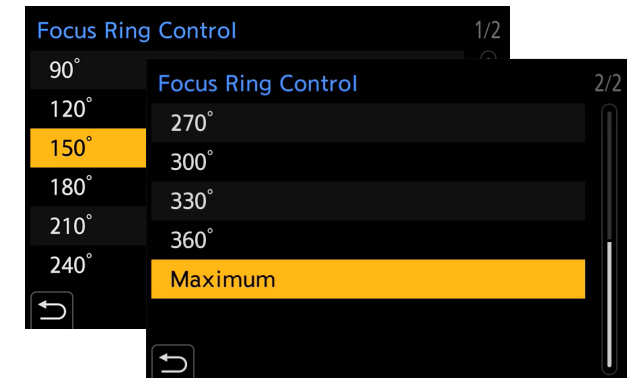
Nonlinear

This setting accelerates the focus movement in accordance with the speed of the focus ring rotation.



Linear

This setting moves the focus at a constant speed in accordance with the rotating angle of the focus ring.

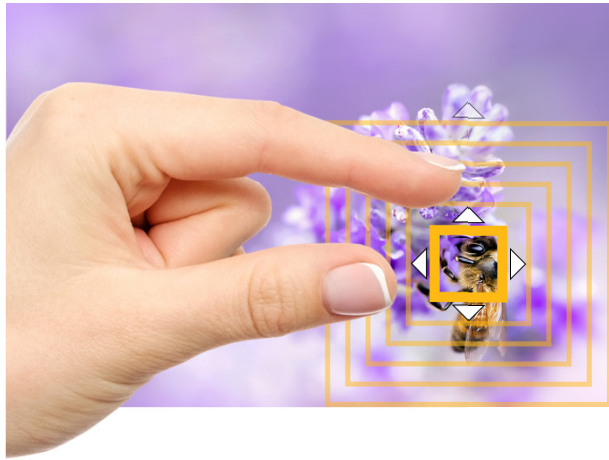


Set

You can set the focus ring rotating angle when [Linear] is selected.

[7] Touch Functions

Intuitive Control with Touch Monitor



Touch AF

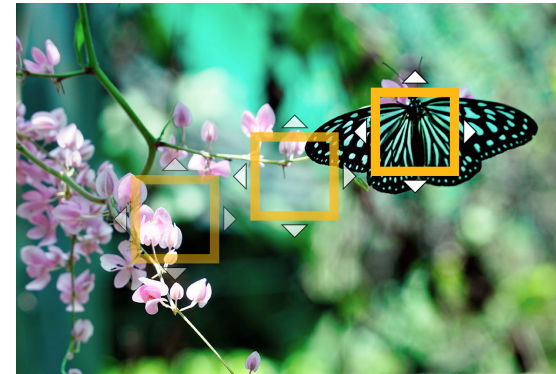
Use intuitive touch operation (Pinch In/Out) just like you do with a smartphone. You can seamlessly change the size of the AF area, and focus over the entire screen.



Touch Shutter

Simply touch the subject you want to shoot. The image is automatically focused, and you can also release the shutter with a touch.

Touch Pad AF



The Touch Pad function enables you to use both the LVF and monitor simultaneously for more flexible focusing.



Introduction to LUMIX AF Technologies

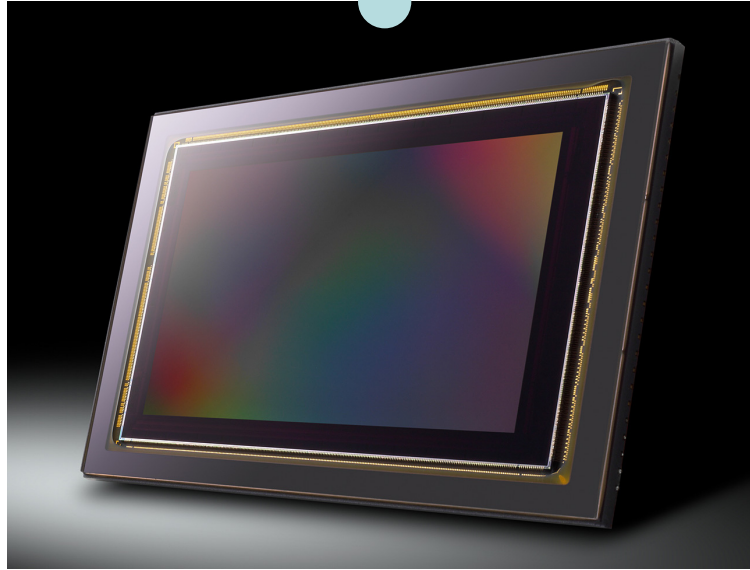
Overall LUMIX System Advantages

The AF technology accumulated by LUMIX provides optimal control of the three main devices



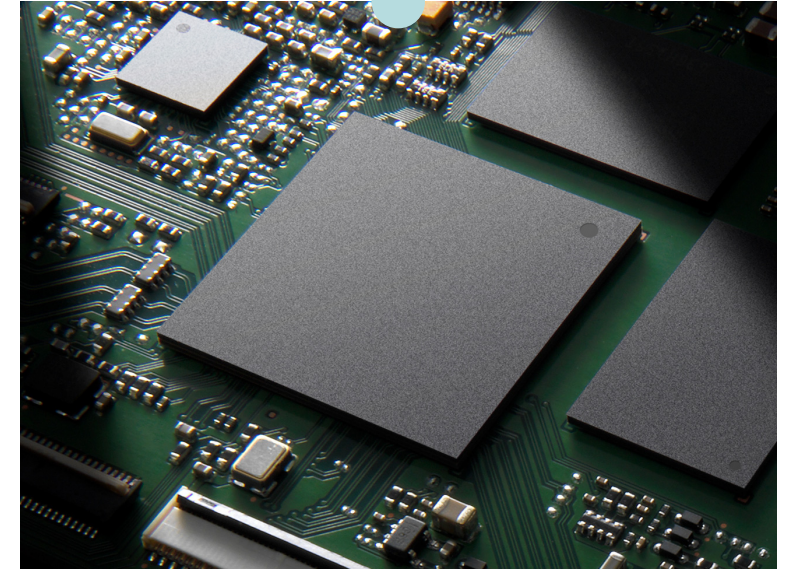
LENS

- 480 fps
- Linear motor
- Double Focus System
- Ultrasonic Assist System



SENSOR

- 480 fps
- High sensitivity and low noise



ENGINE

- Optimized lens control system
- Contrast AF optimized for full frame sensor
- DFD technology
- Human / Animal recognizing technology

Lens : Double Focus System

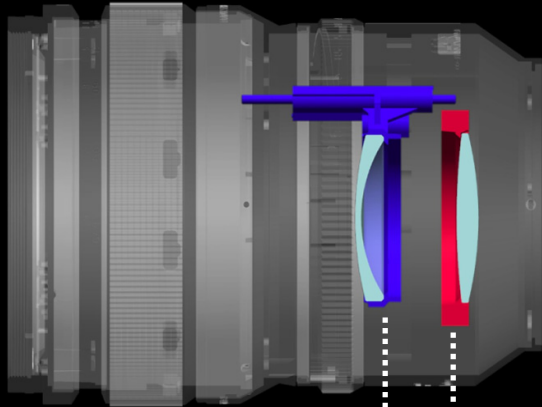
High-speed, high precision AF

480 fps AF Control

Double Focus System / Ultrasonic Assist System

DFD Technology

S-X50



Primary Focus Secondary Focus

- Two independently moving focus lens groups realize high picture quality at all focal lengths (all depths of field).
- Division of the focus lens into two groups has reduced the weight of each lens group and enables high-speed, high-precision focusing.

Higher accuracy of stopping position keeping the image quality as high as possible from center to corner.

Lens : Ultrasonic Assist System

High-speed, high precision AF

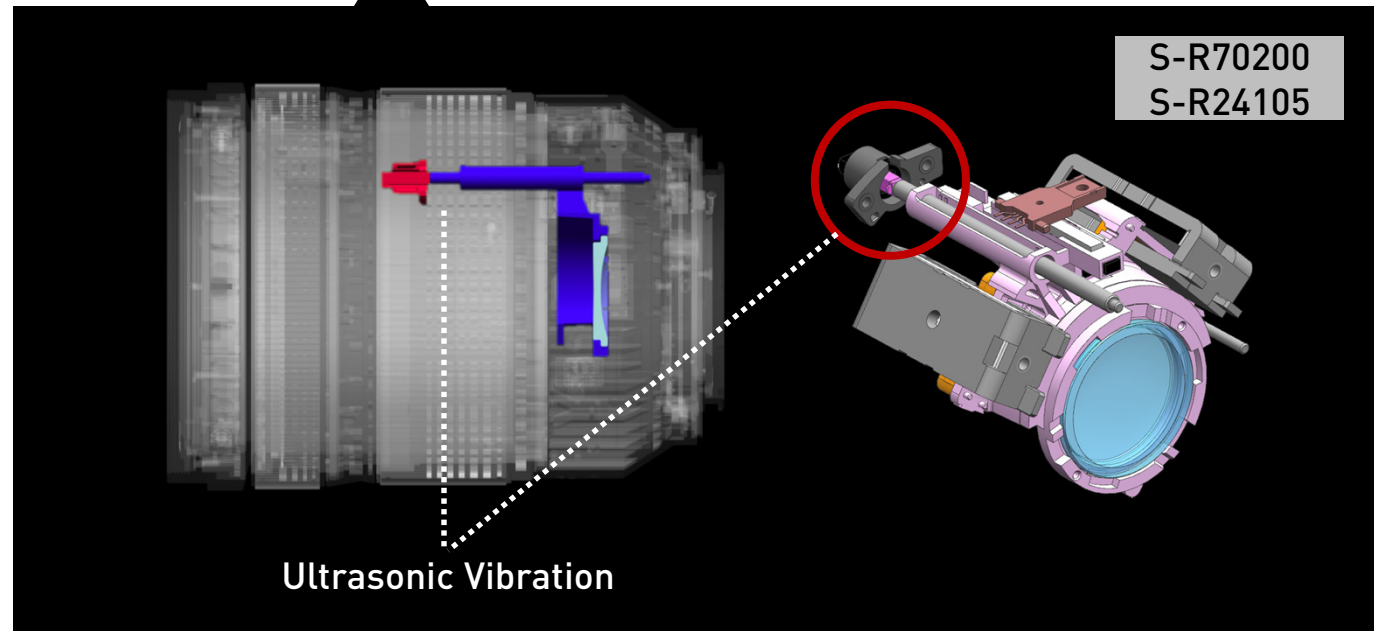
480 fps AF Control

Double Focus System / Ultrasonic Assist System

DFD Technology

With the conventional system, an attempt to improve the precision of auto focusing to an unprecedented level will be hindered by the slight friction caused at the guide shaft surface, and the focus lens stopping accuracy can possibly degrade.

Panasonic has employed an ultrasonic vibrator to produce nano-order ultrasonic vibration in the guide shaft and successfully reduced the friction against the frame. This has eliminated the problem caused by friction and achieved high focusing precision.



Higher accuracy of stopping position keeping the image quality as high as possible from center to corner.

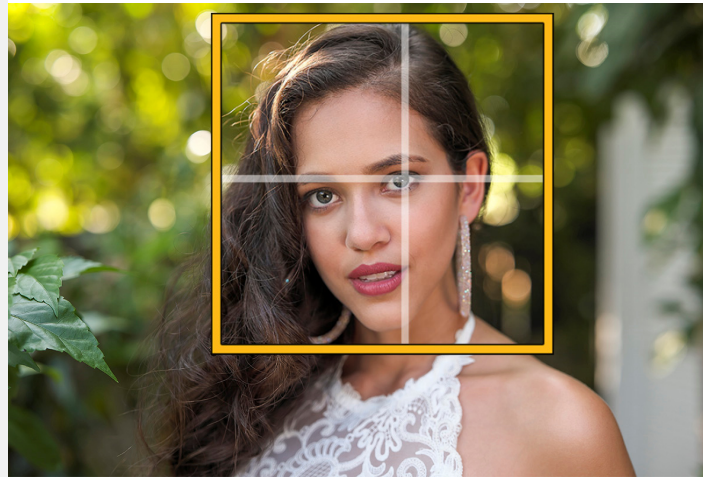
Recognition Technology

Cutting-edge recognition technology that only Panasonic can achieve

Instantaneous Calculation of Spatial Information
Depth from Defocus



Recognition of People's Faces and Pupils
Face/Eye Detection



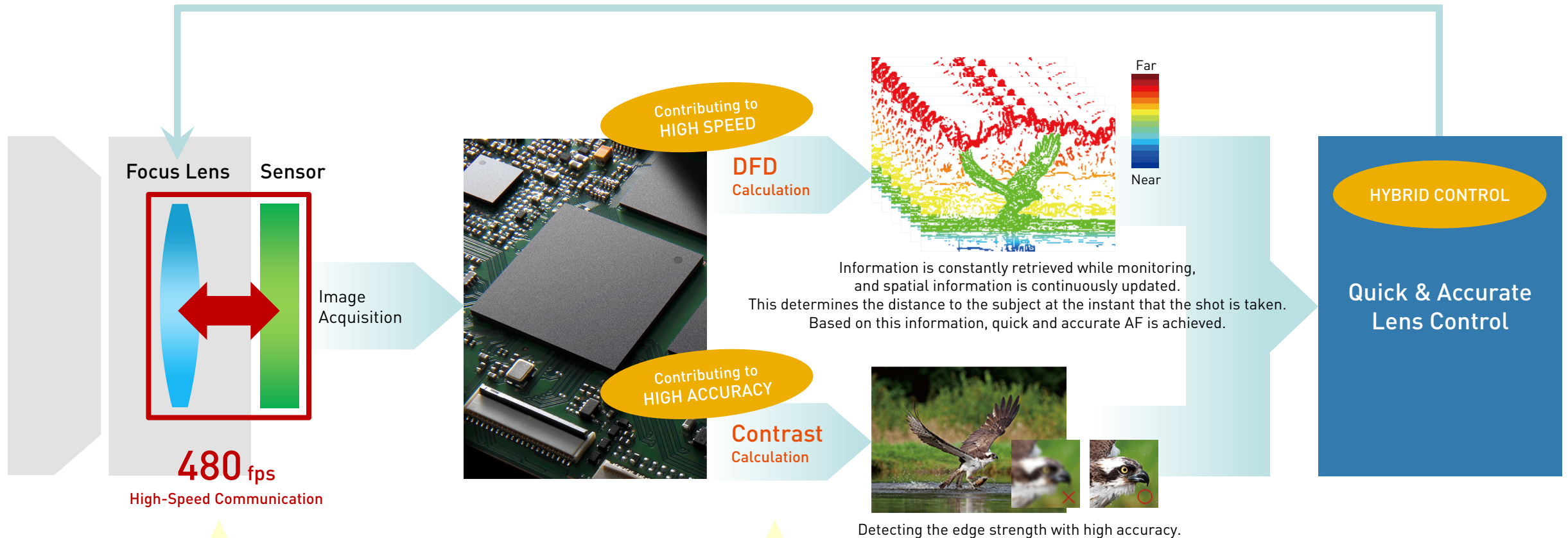
Recognition of Human Bodies and Animals
Deep Learning



Cutting-edge recognition technology makes it possible to accurately capture subjects.

How the DFD AF Works

Combination of Contrast AF & DFD technology realizes quick and accurate AF



Total system including a sensor and a lens works fully in **480 fps**

Accurate Contrast AF and quick DFD AF realize the **0.08 sec*** accurate AF

* 11EV, at wide-end with S-R24105 (CIPA) in LVF120 fps setting.

Recognition Function with Deep Learning Technology

Human Body Recognition and Animal Recognition

Deep Learning technology creates a human body / animal recognition AI to accurately recognize a person and animal. A human body recognition / animal recognition AI acquired from a huge number of images is processed by the camera's Venus Engine.



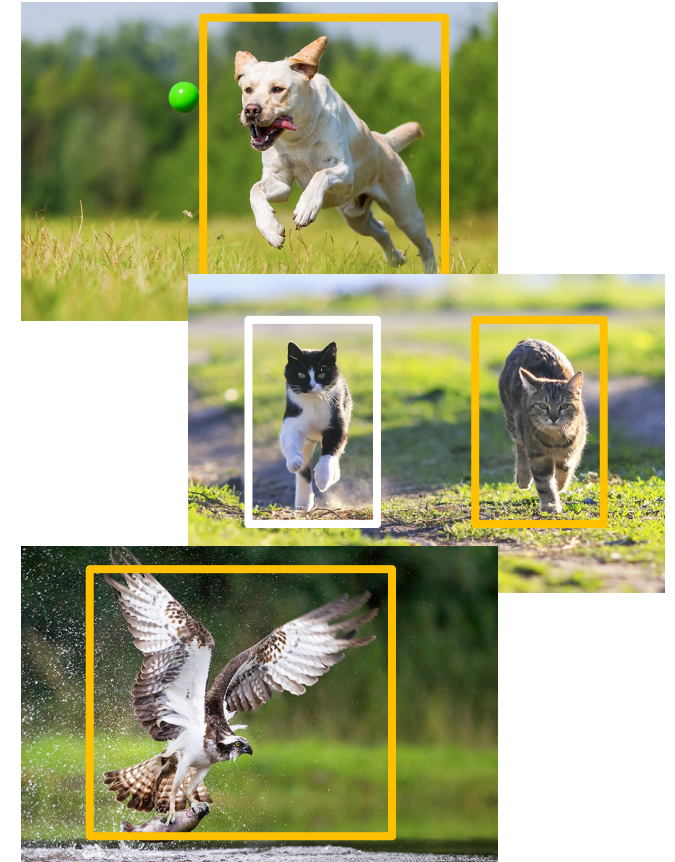
Panasonic's advanced technology will continue to expand the range of application for deep learning.

Human Bodies



Focuses on the subject even if he or she is facing backward.

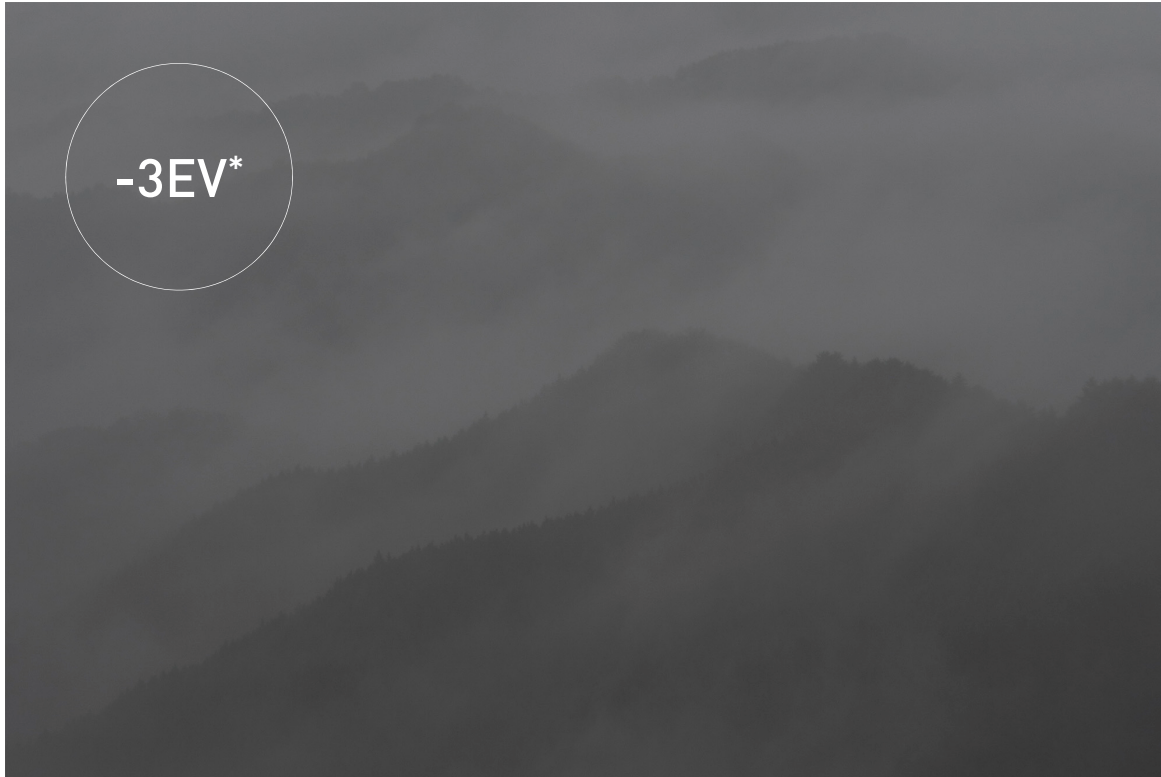
Animal (Canidae, Felidae, Birds)



Allows the photographer to concentrate on the picture composition in difficult animal photography.

Low Light AF

LUMIX is overwhelmingly superior for shooting in low-contrast, low-light



Low Contrast Situations

Accurate focusing even when shooting low-contrast scenes with fog or mist.

* At ISO100, F1.4, AFS. 10% contrast target.



Low Light Situations

Low Light AF supporting -6EV.

Accurate focusing is possible even in low lighting conditions with no light sources except starlight. No need to use flash or AF assist lamp.

** At ISO100, F1.4, AFS. 100% contrast target.

Summary : This is what's great about the LUMIX AF!

Lens Side

- ✓ 480 fps Drive
- ✓ Linear Motor Actuator
- ✓ Double Focus System
- ✓ Ultrasonic Assist System

Sensor Side

- ✓ 480 fps Drive
- ✓ Low-contrast Capacity
Low-light Capacity

Engine Side

- ✓ Contrast AF Optimized
for Full Frame Sensor
- ✓ DFD Technology Optimized
for Full Frame Sensor
- ✓ Human / Animal
Recognizing Technology

LUMIX

- Design, functions, and specifications are subject to change without notice.
- Some sample images are simulated.
- The use of recorded or printed materials that are protected by copyright for any purpose other than personal enjoyment is prohibited, as it would infringe upon the rights of the copyright holder.