

LUMIX

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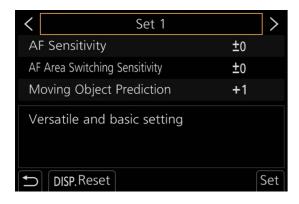
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AF Custom Setting

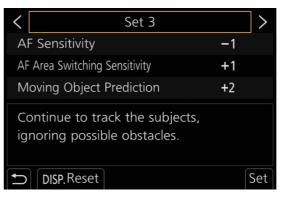


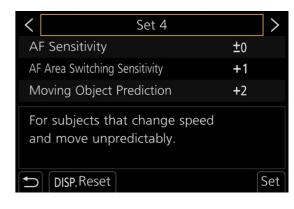
AF Custom Setting

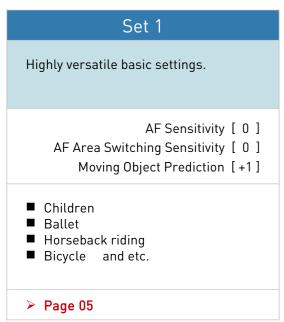
Customizing AF directivity to match the situation

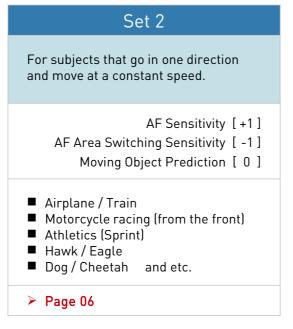




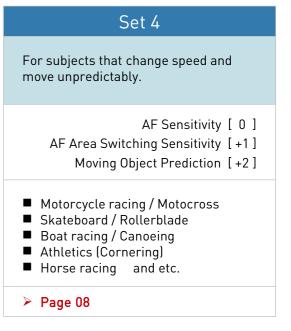












Set 1

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 ■ Ballet

■ Horseback riding

■ Bicycle

: Whole body. Playing or running.

: Whole body. Gentle movements.

: Whole body. Trotting.

: Whole body. From the front.

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 racingAthletics

: Sprint. From the front.

■ Hawk / Eagle

: Enlarged in center. From the front.

■ Dog / Cheetah

: Enlarged in center. From the front.

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
- Breaststroke / Butterfly
- Dance
- Equestrian
- Tennis / Badminton
- Surfing

- : The ball and one player.
- : Competition where swimmers go temporarily under the water.
- : One dancer in a group. One couple in a dance competition.
- : Show jumping.

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.

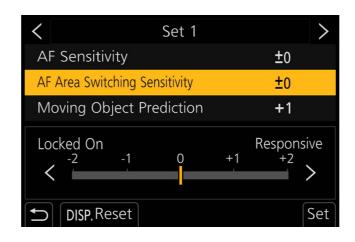
Subjects can be captured one after the other at a good tempo. This is convenient, for example, when you want to focus on each of the riders in a motorcycle race.

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.

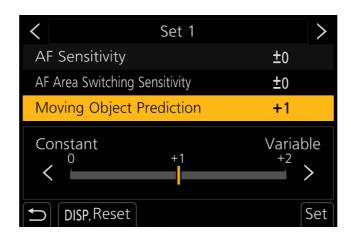
10

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.

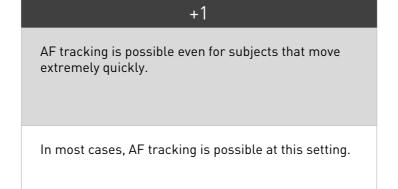


0 Constant

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.



+2 Variable

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

For subjects that move unpredictably so their next movement cannot be predicted, the position can be accurately captured instant-by-instant.

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

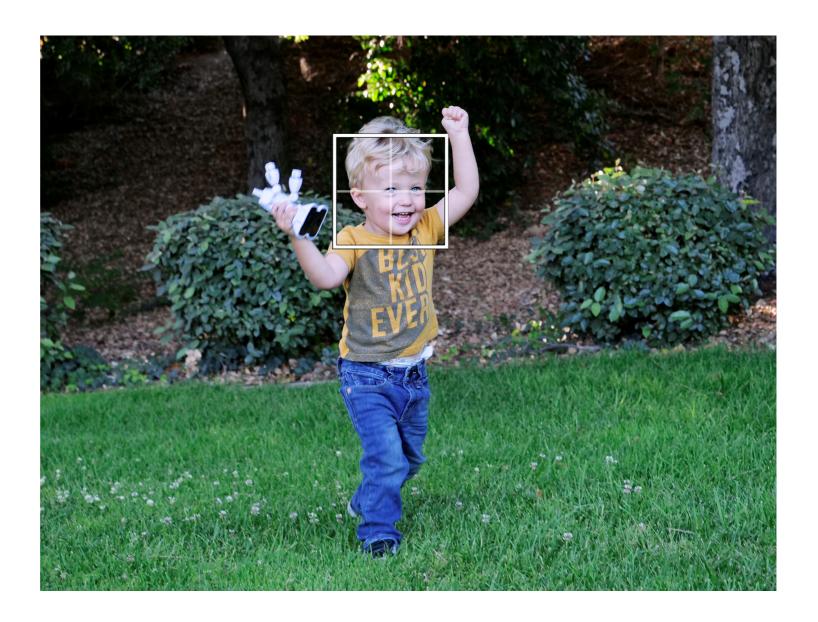
Scene Type 1 Basic Situations

| Focus Mode | AFC | |
|-------------------|-------------------------------------|--|
| AF Mode | Face/Eye 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.



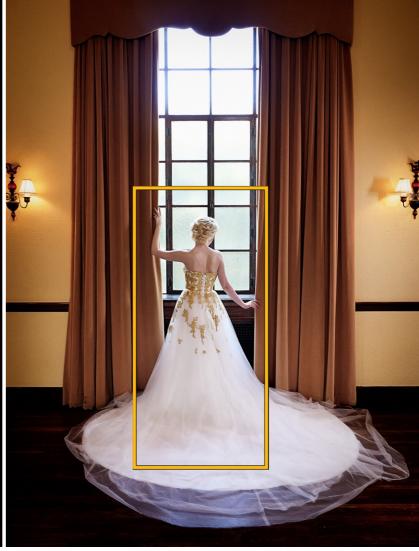
Scene Type 6 Portraits

| Focus Mode | AFS | |
|-------------------|-------------------------------------|--|
| AF Mode | Face/Eye 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.





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 -4EV. The LUMIX GH5S reaches the industry's lowest level of -5EV, 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 | MF Assist Functions |
| 4 | AF-Point Scope |
| 5 | Focus Switching for Vertical / Horizontal |
| 6 | Focus/Release Priority |
| 7 | Intuitive Button Control |
| 8 | Custom Buttons |
| 9 | Touch Functions |

[1] Focus Mode

AFS Auto Focus Single



AFF Auto Focus Flexible



AFC Auto Focus Continuous



MF Manual Focus



Still Subjects

For scenery, food, etc.

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

Unpredictable Movements

For children, pets, etc.

Automatically performed when the shutter button is half-pressed. If the subject moves, the focus is reset to get the best results.

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.

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 Detection AF



The camera detects the person's face and eyes, and chooses the optimal focus and exposure.

Applicable Situations:

In addition to accurate face recognition, Human Body Recognition* using Deep Learning technology focuses on the subject even if he or she is facing backward.

* LUMIX GH5S / G9 only.

Tracking AF

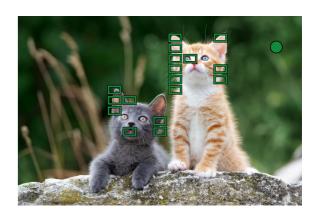


The camera locks on and "tracks" the subject as it moves, continuously adjusting the focus.

Applicable Situations:

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 AF



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.

[2] Auto Focus Mode 2

Custom Multi



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

Applicable Situations:

- Three default settings: Vertical, Horizontal, Center
- 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:

- 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.

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.

[3] MF 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 .

^{*} For the LUMIX GH5 / G9, firmware must be updated to the latest version.

[3] MF Assist Functions 2

AF-ON One-shot AF









Focus with AF before fine tuning with MF.

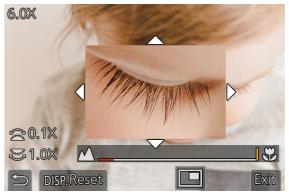
AF+MF

AF





MF



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

[4/5] AF-Point Scope / Focus Switching for Vertical/Horizontal

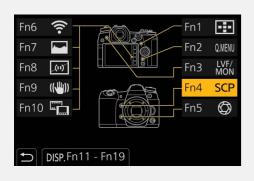
AF-Point Scope (G9)





You can temporarily enlarge the view by 3-10 times to check the focus.

Refocus inside the enlarged area.



Setting Method

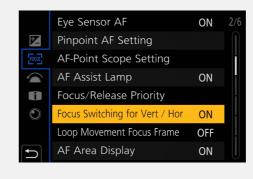
- 1. Allocate the function to an Fn button.
- 2. Press and hold the Fn button when shooting to enlarge the AF area.
- 3. Half-press the shutter button to refocus inside the enlarged area.

Focus Switching for Vertical / Horizontal (GH5S/G9)







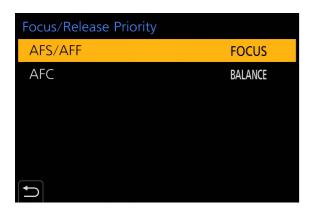


Setting Method

- 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.

[6] Focus/Release Priority

Focus/Release Priority



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

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

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

[7] Intuitive Button Control 1

Intuitive Control with External Buttons

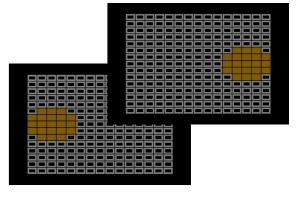


Joystick Controller





The joystick controller allows you to smoothly select focus areas from 225 areas.

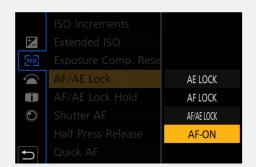


The AF area can be moved from the end of the screen to the opposite end.

[7] Intuitive Button Control 2

AF/AE Lock / AF-ON





In addition to the usual AF/AE Lock, AF-ON can be selected.

| How to Use AF-ON | | |
|-------------------|---|--|
| MF | Activates the AF temporarily. Press the button and focus inside the frame. | |
| AFS AFF 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

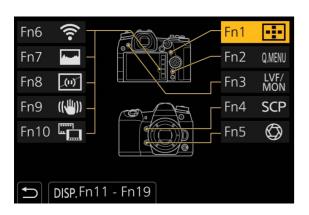


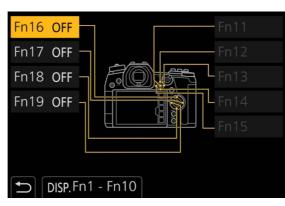
[8] Custom Buttons 1

Camera Fn Buttons

You can allocate various functions to the Fn buttons for quick recall.

This enables you to customize your camera.





| | GH5 / GH5S | G9 |
|-----------------|------------|------------|
| Fn Button | Fn 1- 5 | Fn 1- 5 |
| Fn Touch Button | Fn 6-11 | Fn 6-10 |
| Dial / Joystick | Fn 12 - 20 | Fn 11 - 19 |

19 Button (G9)



Max. 96 Rec Setting*

* For Fn 1-5 on the LUMIX G9.

There's almost no limit to customizing!

Shooting functions that you can allocate. * For Fn 1-5 on the LUMIX G9.

| 1 | Wi-Fi | 33 | Highlight Shadow | 65 | White Balance |
|----|-------------------------|----|-------------------------|----|-----------------------------|
| 2 | Q.MENU | 34 | i. Dynamic | 66 | WB (Auto White Balance) |
| 3 | Video Record | 35 | i. Resolution | 67 | WB (AWB Cool) |
| 4 | LVF/Monitor Switch | 36 | Min. Shtr Speed | 68 | WB (Daylight) |
| 5 | LVF/Monitor Disp. Style | 37 | Post Focus | 69 | WB (Cloudy) |
| 6 | AF-Point Scope | 38 | HDR | 70 | WB (Shade) |
| 7 | AF/AE LOCK | 39 | Shutter Type | 71 | WB (Incandescent) |
| 8 | AF-ON | 40 | Flash Mode | 72 | WB (Flash) |
| 9 | Preview | 41 | Flash Adjust. | 73 | WB (White Set 1) |
| 10 | One Push AE | 42 | Wireless Flash Setup | 74 | WB (White Set 2) |
| 11 | Touch AE | 43 | Ex. Tele Conv. | 75 | WB (White Set 3) |
| 12 | Level Gauge | 44 | Digital Zoom | 76 | WB (White Set 4) |
| 13 | Focus Area Set | 45 | Stabilizer | 77 | WB (Color Temperature 1) |
| 14 | Zoom Control | 46 | I.S. Lock (Video) | 78 | WB (Color Temperature 2) |
| 15 | 1 Shot RAW+JPG | 47 | 4K Live Cropping | 79 | WB (Color Temperature 3) |
| 16 | 1 Shot Spot Metering | 48 | Motion Pic. Set | 80 | WB (Color Temperature 4) |
| 17 | 1 Shot 6K/4K PH0T0 | 49 | Picture Mode in Rec. | 81 | Photo Style (Standard) |
| 18 | Operation Lock | 50 | Mic Level Adj. | 82 | Photo Style (Vivid) |
| 19 | Dial Operation Switch | 51 | Mic. Directivity Adjust | 83 | Photo Style (Natural) |
| 20 | Destination Slot | 52 | Silent Mode | 84 | Photo Style (Monochrome) |
| 21 | Photo Style | 53 | Peaking | 85 | Photo Style (L. Monochrome) |
| 22 | Filter Select | 54 | Histogram | 86 | Photo Style (Scenery) |
| 23 | Aspect Ratio | 55 | Guide Line | 87 | Photo Style (Portrait) |
| 24 | Picture Size | 56 | Zebra Pattern | 88 | Photo Style (Custom 1) |
| 25 | Quality | 57 | Monochrome Live View | 89 | Photo Style (Custom 2) |
| 26 | AFS/AFF | 58 | Constant Preview | 90 | Photo Style (Custom 3) |
| 27 | Metering Mode | 59 | Rec Area | 91 | Photo Style (Custom 4) |
| 28 | Burst Shot Setting | 60 | Step Zoom | 92 | Photo Style (Cinelike D) |
| 29 | 6K/4K PH0T0 | 61 | Zoom Speed | 93 | Photo Style (Cinelike V) |
| 30 | Self Timer | 62 | Night Mode | 94 | AF Mode/MF |
| 31 | High Resolution Mode | 63 | Exposure Comp. | 95 | Rec/Playback Switch |
| 32 | Bracket | 64 | Sensitivity | 96 | Off |

[8] Custom Buttons 2

Fn Lever (G9)



Pinpoint setting can be instantly changed.

| Shooting functions that | ooting functions that you can allocate. | | | |
|-------------------------|---|--|--|--|
| AF Mode | Quality | | | |
| Photo Style | Long Shtr NR | | | |
| Stabilizer | 6K/4K PH0T0 (Pre-Burst) | | | |
| Self Timer | Silent Mode | | | |
| Shutter Type | Bracket | | | |
| Touch Screen | Touch Pad AF | | | |
| Auto Review (Photo) | Peaking | | | |
| Night Mode | Front/Rear/Control | | | |
| Dial Lock | Off | | | |

Lens Fn Button (ES200)



A function can be allocated to the Fn button of the lens.

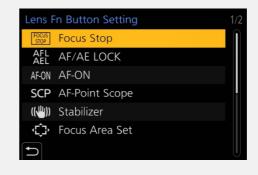
For example, if you have set Face/Eye Detection in AF mode, you can temporarily switch to 1-Area AF and shoot while effectively focusing on the bouquet.

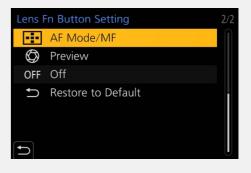




Setting Method

- 1. Allocate on the camera for the following settings.
- 2. Set switch 1 to [Fn], then press button 2 to recall the allocated function.





[9] 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



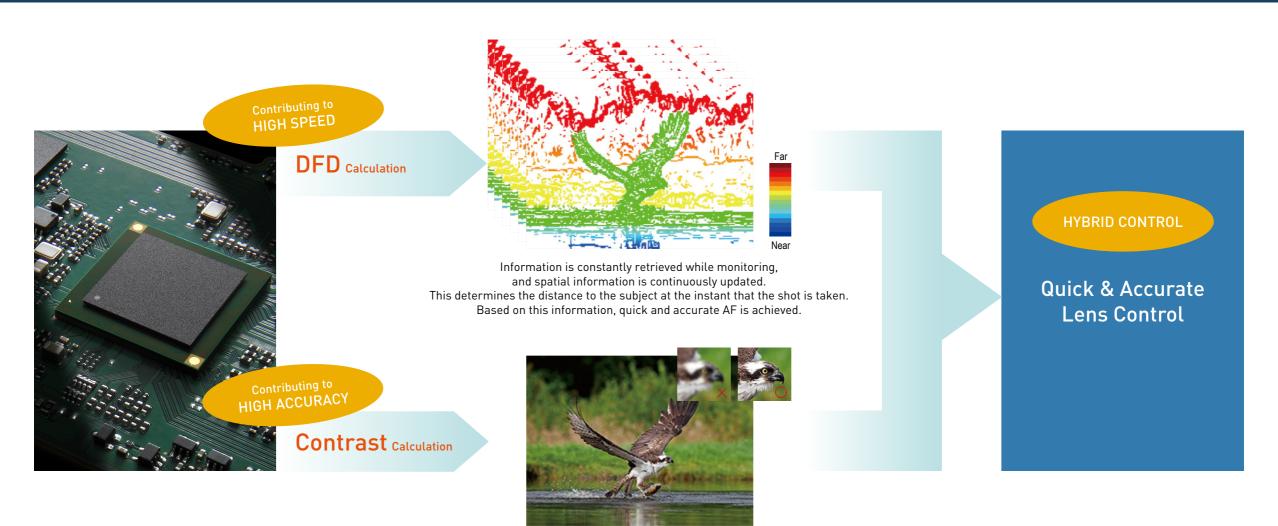
The Touch Pad function enables you to use both the LVF and monitor simultaneously for more flexible focusing.



Introduction to LUMIX AF Technologies

How the DFD AF Works

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



Detecting the edge strength with high accuracy.

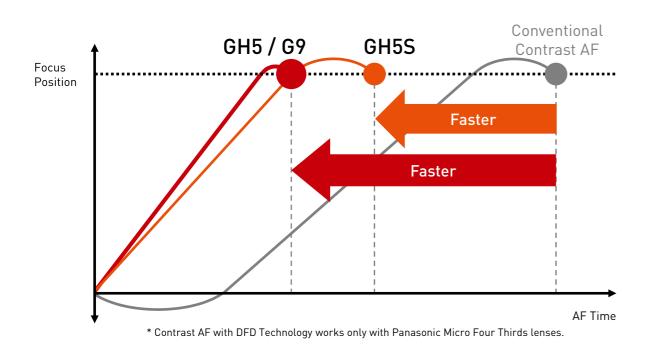
Benefits of DFD AF*

DFD AF and Motion Vector are combined to achieve fast AF and AFC burst shooting

Higher-speed AF with Advanced DFD

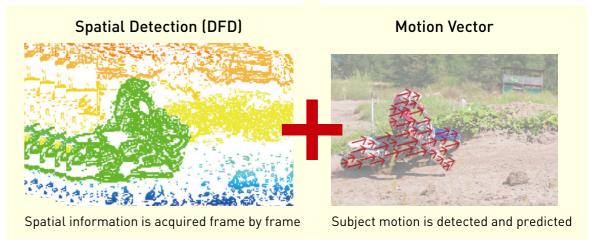
Plus...

More Accurate AF Tracking with Motion Vector



LUMIX can keep tracking accurately even for fast-moving subjects.





Fast Autofocusing

| G9 | GH5 | GH5S |
|-------------------|--------------------|--------------------|
| 0.04 sec** | 0.05 sec*** | 0.07 sec*** |

High-speed AFC Burst Shooting

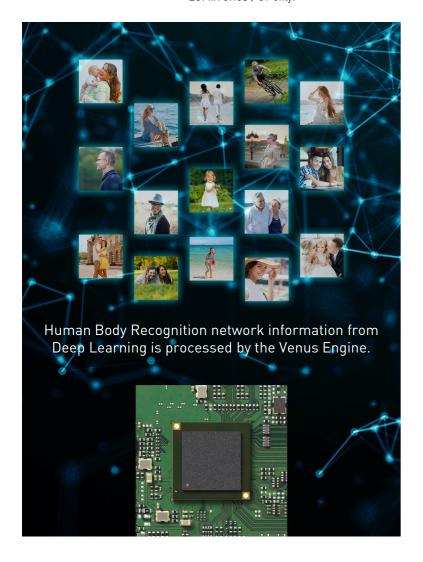
| G9 | GH5 | GH5S |
|------------|------------------|------------------|
| AFC 20 fps | AFC 9 fps | AFC 8 fps |

Human Body Recognition* with Deep Learning Technology (GH5S/G9)

Plus...

Accurate Human Body Recognition focuses even when the subject is facing backward

* LUMIX GH5S / G9 only.





Detection accuracy for person has dramatically improved. Focusing takes place by detecting the position and size of the person's body on the screen, so previously difficult scenes where the face is hidden or the subject is facing backward can now be accurately focused.

Even when there are several subjects to be recognized on the screen, you can simply touch the subject to be focused. AF will focus on the subject you have chosen.

The range of application for Deep Learning technology will continue to grow in the future.

Convenient for scenes such as...



Sports and other scenes where the subject often turns to the side or faces backward.

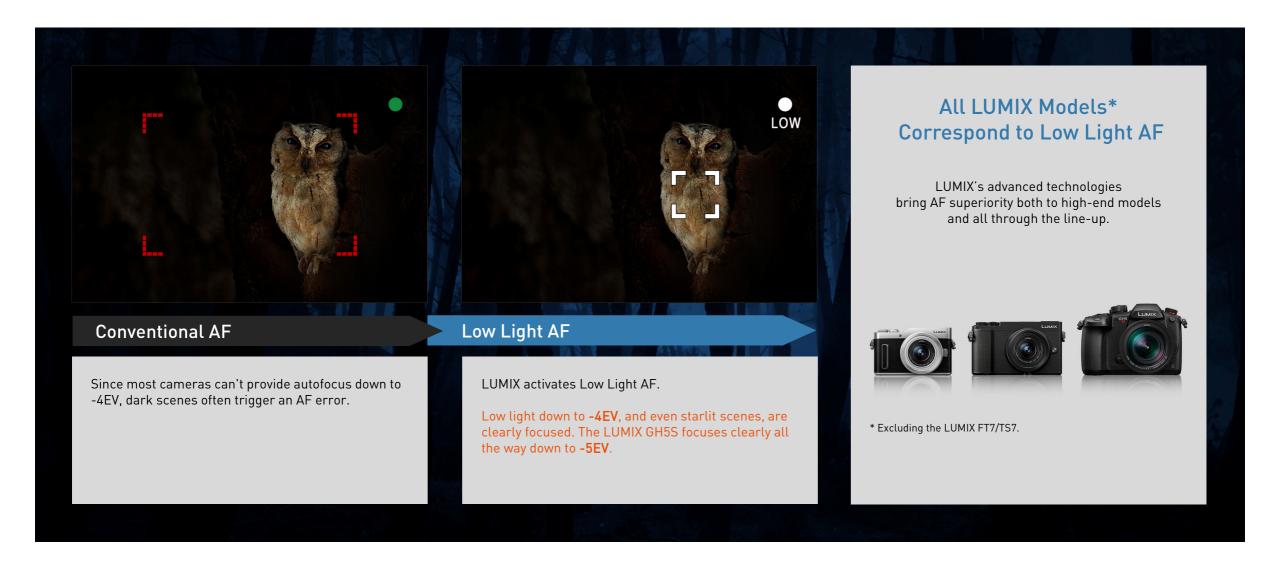


Difficult face recognition shots of a bride with a veil.

Low Light AF

Plus...

LUMIX is overwhelmingly superior for shooting in low light



LUMIX

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- Some sample images are simulated.
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