

Sensor

Inspection Model

FQ2-S1 Series [Single-function Type]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Color	NPN	FQ2-S10010F	FQ2-S10050F	FQ2-S10100F	FQ2-S10100N
	PNP	FQ2-S15010F	FQ2-S15050F	FQ2-S15100F	FQ2-S15100N
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

FQ2-S2 Series [Standard Type]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Color	NPN	FQ2-S20010F	FQ2-S20050F	FQ2-S20100F	FQ2-S20100N
	PNP	FQ2-S25010F	FQ2-S25050F	FQ2-S25100F	FQ2-S25100N
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

FQ2-S3 Series [High-resolution Type]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	C-mount	
Number of pixels	760,000 pixels				1.3 million pixels	
Color	NPN	FQ2-S30010F-08	FQ2-S30050F-08	FQ2-S30100F-08	FQ2-S30100N-08	FQ2-S30-13
	PNP	FQ2-S35010F-08	FQ2-S35050F-08	FQ2-S35100F-08	FQ2-S35100N-08	FQ2-S35-13
Monochrome	NPN	FQ2-S30010F-08M	FQ2-S30050F-08M	FQ2-S30100F-08M	FQ2-S30100N-08M	FQ2-S30-13M
	PNP	FQ2-S35010F-08M	FQ2-S35050F-08M	FQ2-S35100F-08M	FQ2-S35100N-08M	FQ2-S35-13M
Field of view/ Installation distance	Refer to figure 5 on p.20	Refer to figure 6 on p.20	Refer to figure 7 on p.20	Refer to figure 8 on p.20	Refer to optical chart on p.30.	

Inspection / ID Model

FQ2-S4 Series [Standard Type]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Color	NPN	FQ2-S40010F	FQ2-S40050F	FQ2-S40100F	FQ2-S40100N
	PNP	FQ2-S45010F	FQ2-S45050F	FQ2-S45100F	FQ2-S45100N
Monochrome	NPN	FQ2-S40010F-M	FQ2-S40050F-M	FQ2-S40100F-M	FQ2-S40100N-M
	PNP	FQ2-S45010F-M	FQ2-S45050F-M	FQ2-S45100F-M	FQ2-S45100N-M
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

[High-resolution Type]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	C-mount	
Number of pixels	760,000 pixels				1.3 million pixels	
Color	NPN	FQ2-S40010F-08	FQ2-S40050F-08	FQ2-S40100F-08	FQ2-S40100N-08	FQ2-S40-13
	PNP	FQ2-S45010F-08	FQ2-S45050F-08	FQ2-S45100F-08	FQ2-S45100N-08	FQ2-S45-13
Monochrome	NPN	FQ2-S40010F-08M	FQ2-S40050F-08M	FQ2-S40100F-08M	FQ2-S40100N-08M	FQ2-S40-13M
	PNP	FQ2-S45010F-08M	FQ2-S45050F-08M	FQ2-S45100F-08M	FQ2-S45100N-08M	FQ2-S45-13M
Field of view/ Installation distance	Refer to figure 5 on p.20	Refer to figure 6 on p.20	Refer to figure 7 on p.20	Refer to figure 8 on p.20	Refer to optical chart on p.30.	

ID Model

FQ2-CH Series [Optical Character Recognition Sensor]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Monochrome	NPN	FQ2-CH10010F-M	FQ2-CH10050F-M	FQ2-CH10100F-M	FQ2-CH10100N-M
	PNP	FQ2-CH15010F-M	FQ2-CH15050F-M	FQ2-CH15100F-M	FQ2-CH15100N-M
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

FQ-CR1 Series [Multi Code Reader]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Monochrome	NPN	FQ-CR10010F-M	FQ-CR10050F-M	FQ-CR10100F-M	FQ-CR10100N-M
	PNP	FQ-CR15010F-M	FQ-CR15050F-M	FQ-CR15100F-M	FQ-CR15100N-M
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

FQ-CR2 Series [2D Code Reader]

Field of view	Narrow View	Standard View	Wide View (Long-distance)	Wide View (Short-distance)	
Number of pixels	350,000 pixels				
Monochrome	NPN	FQ-CR20010F-M	FQ-CR20050F-M	FQ-CR20100F-M	FQ-CR20100N-M
	PNP	FQ-CR25010F-M	FQ-CR25050F-M	FQ-CR25100F-M	FQ-CR25100N-M
Field of view/ Installation distance	Refer to figure 1 on p.20	Refer to figure 2 on p.20	Refer to figure 3 on p.20	Refer to figure 4 on p.20	

Sensor [Inspection Model FQ2-S1/S2/S3 Series]

Item		Single-function type	Standard type	High-resolution type			
Model	NPN	FQ2-S10□□□□	FQ2-S20□□□□	FQ2-S30□□□□-08	FQ2-S30□□□□-08M	FQ2-S30-13	FQ2-S30-13M
	PNP	FQ2-S15□□□□	FQ2-S25□□□□	FQ2-S35□□□□-08	FQ2-S35□□□□-08M	FQ2-S35-13	FQ2-S35-13M
Field of view		Refer to Ordering Information on p.19. (Tolerance (field of view): ±10% max.)				Select a lens according to the field of view and installation distance.	
Installation distance						Refer to the optical chart on p.30.	
Main functions	Inspection items	Shape Search III, Shape Search II, Search, sensitive search, area, color data, edge position, edge pitch, edge width, and labeling					
	Number of simultaneous measurements	1	32				
	Position compensation	Supported (360° Model position compensation, Edge position compensation, Linear correction)					
	Number of registered scenes	8 *	32 *				
	Calibration	Supported					
Image input	Image processing method	Real color		Monochrome	Real color	Monochrome	
	Image filter	High dynamic range (HDR), image adjustment (Color Gray Filter, Weak smoothing, Strong smoothing, Dilate, Erosion, Median, Extract edges, Extract horizontal edges, Extract vertical edges, Enhance edges, Background suppression), polarizing filter (attachment), and white balance (Sensors with Color Cameras only), Brightness Correction					
	Image elements	1/3-inch color CMOS		1/2-inch color CMOS	1/2-inch Monochrome CMOS	1/2-inch color CMOS	1/2-inch Monochrome CMOS
	Shutter	Built-in lighting ON: 1/250 to 1/50,000s Built-in lighting OFF: 1/1 to 1/50,000s		Built-in lighting ON: 1/250 to 1/60,000s Built-in lighting OFF: 1/1 to 1/4155s		1/1 to 1/4155s	
	Processing resolution	752 × 480		928 × 828		1280 × 1024	
	Partial input function	Supported horizontally only.		Supported horizontally and vertically			
	Image display	Zoom-in/Zoom-out/Fit, Rotating by 180°					
	Lens mounts	---				C-mount	
Lighting	Lighting method	Pulse				---	
	Lighting color	White				---	
Data logging	Measurement data	In Sensor: 1,000 items (If a Touch Finder is used, results can be saved up to the capacity of an SD card.)					
	Images	In Sensor: 20 images (If a Touch Finder is used, images can be saved up to the capacity of an SD card.)					
Auxiliary function		Statistical data, Test Measurements, I/O monitor, Password function, Simulation software, Sensor error history, Calibration, Math (arithmetic, calculation functions, trigonometric functions, and logic functions)					
Measurement trigger		External trigger (single or continuous) Communications trigger (Ethernet TCP no-protocol, Ethernet UDP no-protocol, Ethernet FINS/TCP no-protocol, EtherNet/IP, PLC Link , or PROFINET)					
I/O specifications	Input signals	7 signals • Single measurement input (TRIG) • Control command input (IN0 to IN5)					
	Output signals	3 signals • Control output (BUSY) • Overall judgement output (OR) • Error output (ERROR) Note: The assignments of the three output signals (OUT0 to OUT2) can also be changed to the following: • READY • RUN • STG (Strobe trigger) • OR0 (Item0 judgement) to OR31 (Item31 judgement) • Exp.0 judgement to Exp.31 judgement					
	Ethernet specifications	100Base-TX/10Base-T					
	Communications	Ethernet TCP no-protocol, Ethernet UDP no-protocol, Ethernet FINS/TCP no-protocol, EtherNet/IP, PLC Link , or PROFINET					
	I/O expansion	---	---	Possible by connecting FQ-SDU1_ Sensor Data Unit. 11 inputs and 24 outputs			
	RS-232C	---	---	Possible by connecting FQ-SDU2_ Sensor Data Unit. 8 inputs and 7 outputs			
	Ratings	Power supply voltage	21.6 to 26.4 VDC (including ripple)				
Current consumption		2.4 A max.				0.3 A max.	
Environmental immunity	Ambient temperature range	Operating: 0 to 50°C Storage: -25 to 65°C (with no icing or condensation)		Operating: 0 to 40°C Storage: -25 to 65°C (with no icing or condensation)			
	Ambient humidity range	Operating and storage: 35% to 85% (with no condensation)					
	Ambient atmosphere	No corrosive gas					
	Vibration resistance (destruction)	10 to 150 Hz, single amplitude: 0.35 mm, X/Y/Z directions 8 min each, 10 times					
	Shock resistance (destruction)	150 m/s ² 3 times each in 6 direction (up, down, right, left, forward, and backward)					
	Degree of protection	IEC 60529 IP67 (Except when Polarizing Filter Attachment is mounted or connector cap is removed.)				IEC 60529 IP40	
Materials	Sensor: PBT, PC, SUS Mounting Bracket: PBT Polarizing Filter Attachment: PBT, PC Ethernet connector: Oil-resistance vinyl compound I/O connector: Lead-free heat-resistant PVC				Cover: Zinc-plated steel, Thickness: 0.6 mm Case: Aluminum diecast alloy (ADC-12) Mounting base: Polycarbonate ABS		
Weight	Narrow View/Standard View: Approx. 160 g Wide View: Approx. 150 g				Approx. 160 g without base, Approx. 185 g with base		
Accessories included with sensor	Mounting Bracket (FQ-XL) (1) Polarizing Filter Attachment (FQ-XF1) (1) Instruction Manual , Member Registration Sheet				Mounting Base (FQ-XLC) (1) Mounting Screw (M3 × 8mm) (4) Instruction Manual, Member Registration Sheet		
LED class	Risk Group 2 (IEC62471)						

* The maximum number of registerable scenes depends on settings due to restrictions on memory.