

ZFX

Easy Vision – Touch, Connect & Go

- Easy vision – intuitive teach & go user interfaces
- Live – built-in LCD touch monitors for setup and immediate feedback
- Communication – centralized setup & inspection via Ethernet
- Versatile – app. 20 tools, 32 inspections per image
- Simplicity – auto-adjustment functions for easy image setup



Ordering Information

Controllers

Appearance	Power supply	Circuit type	Model
	DC21.6 to 26.4V	NPN	ZFX-C10
		PNP	ZFX-C15

Cameras

Appearance	Type		Setting distance	Sensing area	Model	Remarks
 (ZFX-SC50)	Camera with lighting	Monochrome type	34mm to 49mm	5mm x 4.9mm to 9mm x 8.9mm (variable)	ZFX-SR10	Cable length: 2m
			38mm to 194mm	10mm x 9.8mm to 50mm x 49mm (variable)	ZFX-SR50	
		Color type	34mm to 49mm	5mm x 4.9mm to 9mm x 8.9mm (variable)	ZFX-SC10	
			34mm to 187mm	10mm x 9.8mm to 50mm x 49mm (variable)	ZFX-SC50 ZFX-SC50W(IP67)	
			67mm to 142mm	50mm x 49mm to 90mm x 89mm (variable)	ZFX-SC90 ZFX-SC90W(IP67)	
			115mm to 227mm	90mm x 89mm to 150mm x 148mm (variable)	ZFX-SC150 ZFX-SC150W(IP67)	
	Camera only	Monochrome type	The CCTV lens is selected according to the range of detection and the installation distance.		ZFX-S	–
		Color type			ZFX-SC	

Cables

Type		Cable length	Model
Camera Cable ¹	Normal type	3m, 8m	ZFX-VS
	Robot cable type	3m	ZFX-VSR
Camera Extension Cable	Normal type	3m	ZFX-XC3A ²
		8m	ZFX-XC8A ²
	Robot cable type	3m	ZFX-XC3AR ²
Parallel I/O Cable		2m, 5m	ZFX-VP
RS-232C Cable		2m	ZFX-XPT2A
RS-422 Cable		2m	ZFX-XPT2B
Monitor Cable		2m, 5m	FZ-VM

¹. It is necessary for ZFX-S and ZFX-SC. ZFX-SR/_/SC_ is a cable drawing out type, it doesn't use it.

². Up to two camera extension cables can be connected to the camera cable as long as the total cable length between the controller and the camera does not exceed 19 m.

Accessories

Type		Model
Console		ZFX-KP (2m / 5m)
LCD Monitor		FZ-M08
Panel Mount Adapters		ZFX-XPM
Optional Lighting ¹	bar lighting	ZFV-LTL01
	bar double-lighting	ZFV-LTL02
	bar low-angle lighting	ZFV-LTL04
	light source for through beam	ZFV-LTF01
CCTV Lenses/Extension Tubes		3Z4S-LE series
External Lighting		3Z4S-LT series
Strobe Controller ²		Manufactured by MORITEX Corporation 3Z4S-LT MLEK-C100E1TSX

¹. It is possible to ZFX-SC50 and ZFX-SC90 use it.

². It is possible to ZFX-S and ZFX-SC use it. It uses it so that the controller may control an external lighting.

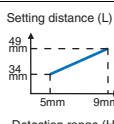
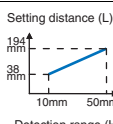
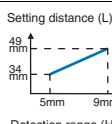
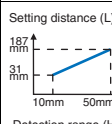
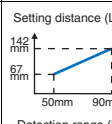
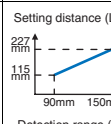
Specifications

Controller

Item			ZFX-C10	ZFX-C15
Number of connected cameras			1	
Connectable camera			ZFX-SR_/SC_/S/SC	
Processing resolution			When ZFX-SR_/SC_ is connected:464 (H) x464 (V) When ZFX-S/SC is connected:608 (H) x464 (V)	
Display		LCD monitor	3.5" TFT color LCD (320 x 240 pixels)	
		Indicator	"Measuring" indicator (color: green): RUN Trigger indicator (color: blue): ENABLE Judgment indicator (color: orange): OUTPUT Error indicator (color: red): ERROR	
External I/F	Parallel Interface	Input	12 points (RESET, DSA, DI0 to 8, TRIG)	
		Output	22 points (OR, ERROR, RUN, ENABLE, GATE, STGOUT0, DO0 to 15)	
		Circuit type	NPN	PNP
	Serial Interface	USB2.0	1 port, FULL SPEED, MINI-B connector	
		RS-232C	1 port, max. 115200 bps (cannot be used simultaneously with RS-422 interface)	
		RS-422	1 port, max. 115200 bps (cannot be used simultaneously with RS-232C interface)	
	Network communications	Ethernet	1 port, 100BASE-TX/10BASE-T	
	Monitor output		Analog RGB output, 1 ch (resolution VGA: 640 x 480)	
Memory card I/F		SD card slot 1 ch		
Operation I/F			Touch panel, key operation, console connection	
Main functions	Number of registered banks		32 banks	
	Number of setup items		32 items/1 bank	
	Measurement items	Shape inspection	Pattern search, sensitive search	
		Size inspection	Area	
		Edge inspection	Position, width, count	
		Brightness/color inspection	Brightness, HUE	
		Application-based inspection	Defects	
Postion correction		1 model search, 2 model search, position, area		
Support	Image memory function		Max. 100 images	
Menu language			Japanese/English (can be switched)	
Ratings		Power supply voltage	21.6 to 26.4 VDC (including ripple)	
		Current consumption	1.5 A max.	
		Insulation resistance	Across all lead wires and controller case: 20 M (by 250 V megger)	
		Dielectric strength	Across all lead wires and controller case, 1000 VAC, 50/60 Hz, 1 min	

Item		ZFX-C10	ZFX-C15
Operation environment robustness	Ambient temperature range	Operating: 0 to + 50°C, Storage: -15 to +60°C (with no icing or condensation)	
	Ambient humidity range	Operating and storage: 35% to 85% (with no condensation)	
	Ambient atmosphere	No corrosive gases allowed	
	Degree of protection	IP20 (IEC60529)	
	Vibration resistance (durability)	Vibration frequency: 10 to 150 Hz Single-amplitude: 0.35 mm Acceleration: 50 m/s ² 10 times for 8 minutes	
	Shock resistance (destructive)	150 m/s ² 3 times each in 6 directions (up/down, left/right, forward/backward)	
Material		Case: Polycarbonate (PC), Plate face: PMMA	
Weight		Approx. 620 g	
Accessories		Touch pen (ZFX-TP), Exhaust unit (ZFX-EU), Terminal block adapter (ZFX-XTB), Ferrite core (2 p'ces), Instruction Sheet	

Camera

Item		ZFX-SR10	ZFX-SR50	ZFX-SC10	ZFX-SC50 /SC50W	ZFX-SC90 /SC90W	ZFX-SC150 /SC150W	ZFX-S (monochrome type)	ZFX-SC (color type)
Detection range (H x V) 		5 mm x 4.9 mm to 9 mm x 8.9 mm (variable)	10 mm x 9.8 mm to 50 mm x 49 mm (variable)	5 mm x 4.9 mm to 9 mm x 8.9 mm (variable)	10 mm x 9.8 mm to 50 mm x 49 mm (variable)	50 mm x 49 mm to 90 mm x 89 mm (variable)	90 mm x 89 mm to 150 mm x 148 mm (variable)	The CCTV lens is selected according to the detection range and the setting distance.	
Setting distance (L)		34 mm to 49 mm	38 mm to 194 mm	34 mm to 49 mm	31 mm to 187 mm	67 mm to 142 mm	115 mm to 227 mm		
Relationship between setting distance and detection range									
Image capture element		All-pixel capture inter-line transfer type 1/3" CCD (monochrome)			All-pixel capture inter-line transfer type 1/3" CCD (color)			All-pixel capture inter-line transfer type 1/3" CCD (monochrome)	All-pixel capture inter-line transfer type 1/3" CCD (color)
Effective number of pixels		659(H) x 494 (V)							
Pixel size		7.4 μm (H) x 7.4 μm (V)							
Shutter speed		1/170s to 1/20000s							
Partial function (partial capture)		OFF		1/2 partial, 1/4 partial				Not available	1/2 partial, 1/4 partial
Image rate function		Fine, Normal, High speed		Not available				Fine, Normal, High speed	Not available
Frame rate (at capture of entire screen)		96 fps						90 fps	
Lens mount		– (with Lens)						C mount	
Lighting	Lighting method	Pulse lighting						–	
	LED	Red LED		White LED					
	Type	Direct lighting							
	Guide light	Available (center, measurement region)		Not available					
	Optional lighting I/F	Not available		Not available	Available (ZFV-LT Series)		Not available	Available External lighting: 3Z4S-LT Series Flash Controller: made by Moritex Corporation 3Z4S-LT MLEK-C100E1TSX	
	Indicator Class ^{*1}	–		Class 1	Class 2	Class 2	Class 1		
Ratings	Power supply voltage (supplied from Controller)	15 VDC			15 VDC, 48 VDC			15 VDC, 48 VDC	
	Current consumption	Approx. 200 mA			Approx. 350 mA (15 VDC: approx. 150 mA, 48 VDC: approx. 200 mA) (including current consumption when optional lighting is connected)			Approx. 100 mA	

Item		ZFX-SR10	ZFX-SR50	ZFX-SC10	ZFX-SC50 /SC50W	ZFX-SC90 /SC90W	ZFX-SC150 /SC150W	ZFX-S (monochrome type)	ZFX-SC (color type)
Operation environment robustness	Ambient temperature range	Operating: 0 to + 40°C, Storage: -20 to +65°C (with no icing or condensation)						Operating: 0 to + 50°C, Storage: -20 to +65°C (with no icing or condensation)	
	Ambient humidity range	Operating and storage: 35% to 85% (with no condensation)							
	Ambient atmosphere	No corrosive gases allowed							
	Degree of protection	IP65 (IEC60529)		ZFX-SC__ : IP65 (IEC60529), ZFX-SC__W: IP67 (IEC60529)				IP20 (IEC60529)	
	Dielectric strength	1000 VAC 50 Hz/60 Hz 1 min						500VAC 50 Hz/60Hz 1 min	
	Vibration resistance (durability)	10 to 150 Hz Single-amplitude 0.35 mm 10 times for 8 min each in X, Y, and Z directions							
	Shock resistance (destructive)	150 m/s ² 3 times each in 6 directions (up/down, left/right, forward/backward)							
Connection method		Cable built-in type (cable length: 2 m)						Connector connection type (camera cable ZFX-VS/VSR required)	
Material		Case: ABS, mounting fixture: PBT						Case: Aluminum die-cast, Cover: Zinc-plated copper plate 0.5 mm thick, Camera mounting base: ABS	
Weight		Approx. 200 g (including mounting fixture and cable)			Approx. 270 g (including mounting fixture and cable)	Approx. 300 g (including mounting fixture and cable)	Approx. 600 g (including mounting fixture and cable)	Approx. 80 g	
Accessories		mounting fixture (ZFV-XMF) 1 p'ce, Ferrite core 2 p'ce, Instruction Sheet		mounting fixture (ZFV-XMF) 1 p'ce, Ferrite core 2 p'ces, Instruction Sheet	mounting fixture (ZFV-XMF2) 1 p'ce, Ferrite core 2 p'ces, Warning label 1, Instruction Sheet	mounting fixture (ZFV-XMF2) 1 p'ce, Ferrite core 2 p'ces, Warning label 1, Instruction Sheet	Ferrite core 2 p'ces, Instruction Sheet	Instruction Sheet	

*1: Applicable standards IEC60825-1:1993 +A1:1997 +A2:2001, EN60825-1:1994 +A2:2001

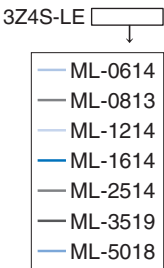
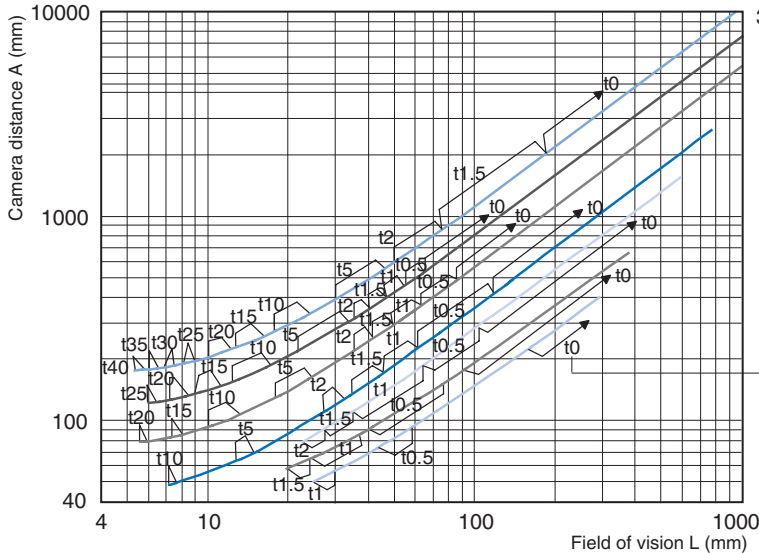
CCTV Lenses

The CCTV Lenses and Extension Tubes described in this page are not yet released.

Optical Graph

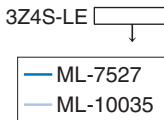
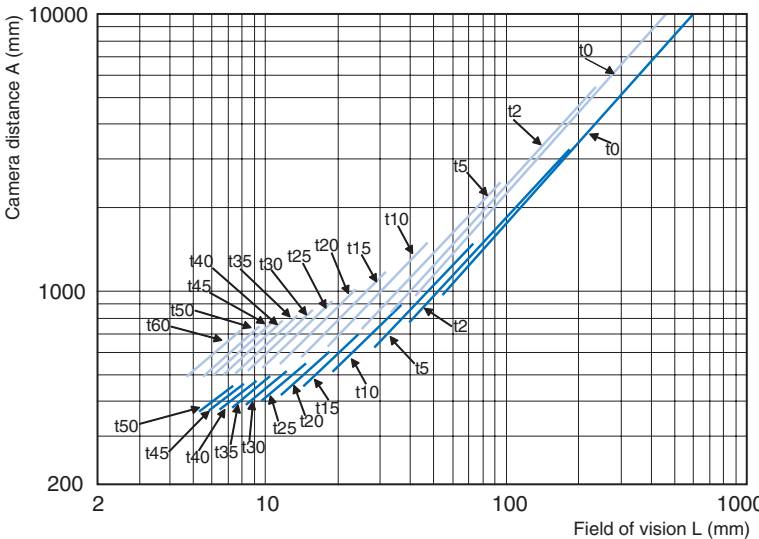
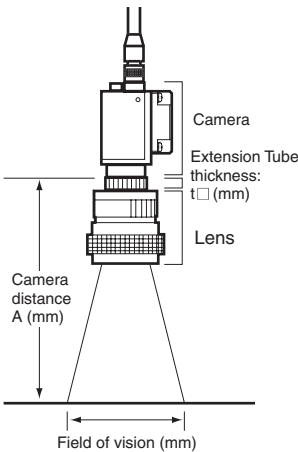
If using the ZFX-S/SC Camera (Camera only), refer to the optical graph below and select the lens and Extension Tubes. The lens to be selected will depend on the size of the measurement object and the camera distance.

Camera Only ZFX-S/SC



The value "t0" indicates applications where an Extension Tube is not needed and the value "t5" indicates applications where a 5-mm Extension Tube is used.

■ Meaning of Optical Graph
The X axis of the graph shows the field of vision L (mm), and the Y axis shows the camera distance A (mm).



CCTV Lenses

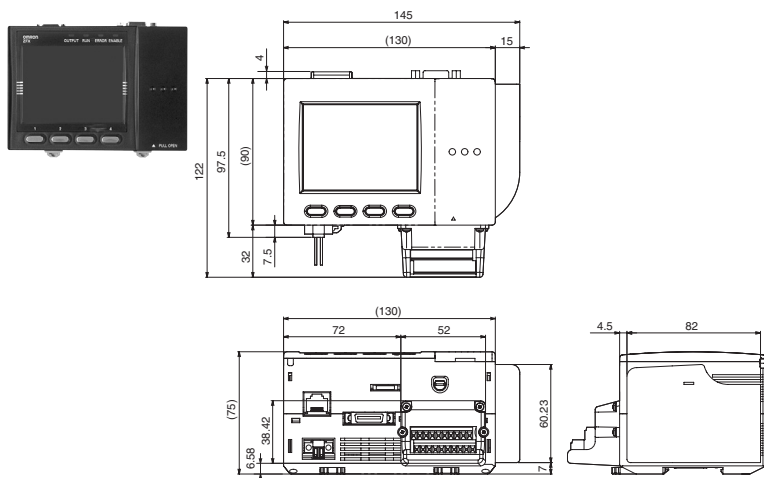
CCTV Lens									
Model	3Z4S-LE ML-0614	3Z4S-LE ML-0813	3Z4S-LE ML-1214	3Z4S-LE ML-1614	3Z4S-LE ML-2514	3Z4S-LE ML-3519	3Z4S-LE ML-5018	3Z4S-LE ML-7527	3Z4S-LE ML-10035
Appearance									
Focal length	6 mm	8 mm	12 mm	16 mm	25 mm	35 mm	50 mm	75 mm	100 mm
Brightness	F1.4	F1.3	F1.4	F1.4	F1.4	F1.9	F1.8	F2.7	F3.5
Filter size	M27 P05	M25.5 P0.5	M27 P0.5	M27 P0.5	M27 P0.5	M27 P0.5	M30 P0.5	M30 P0.5	M30 P0.5

External Dimensions

(Unit: mm)

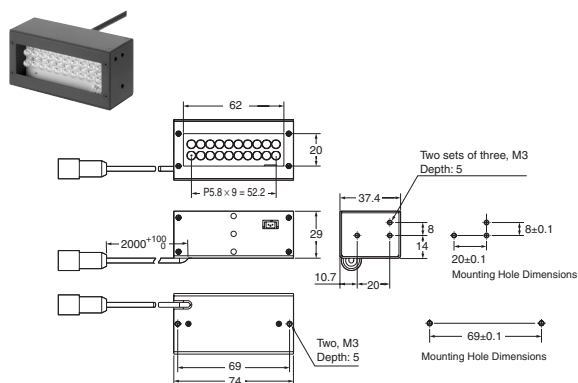
Controllers

ZFX-C10/C15

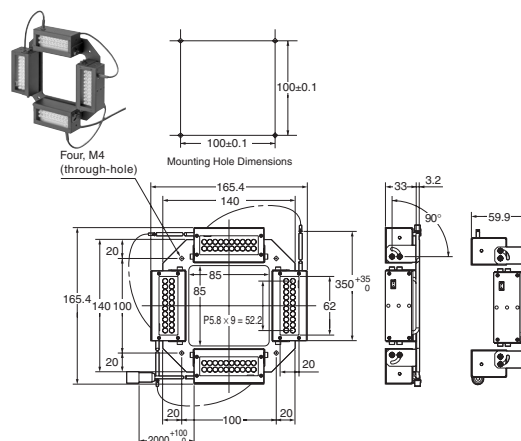


Optional Lighting

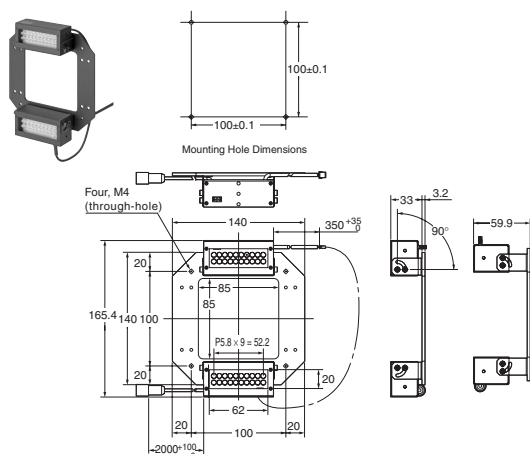
ZFV-LTL01



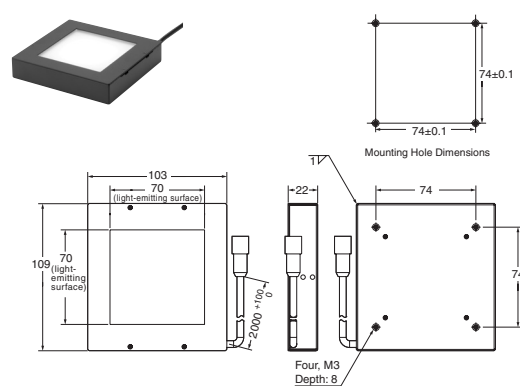
ZFV-LTL04



ZFV-LTL02

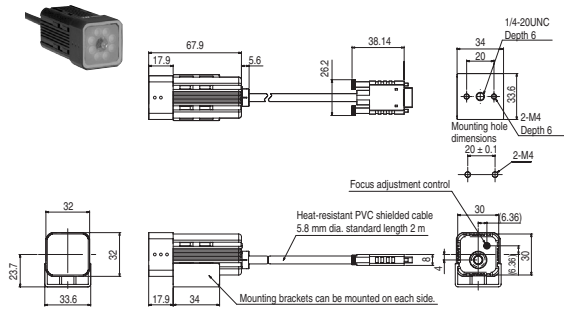


ZFV-LTF01

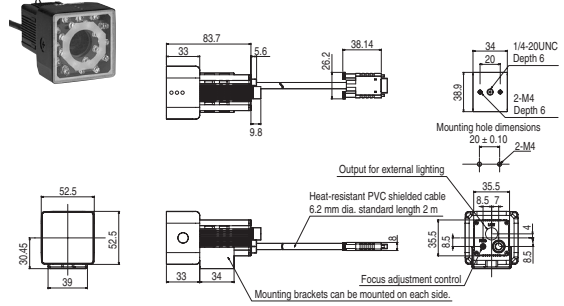


Cameras

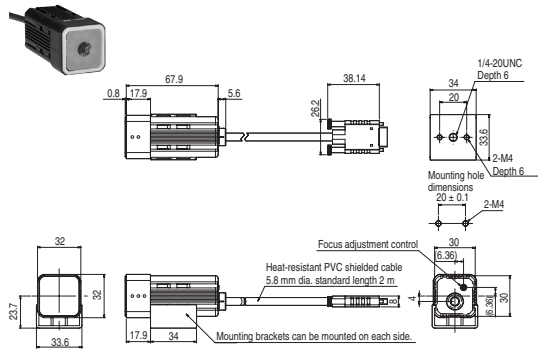
ZFX-SR10/SR50



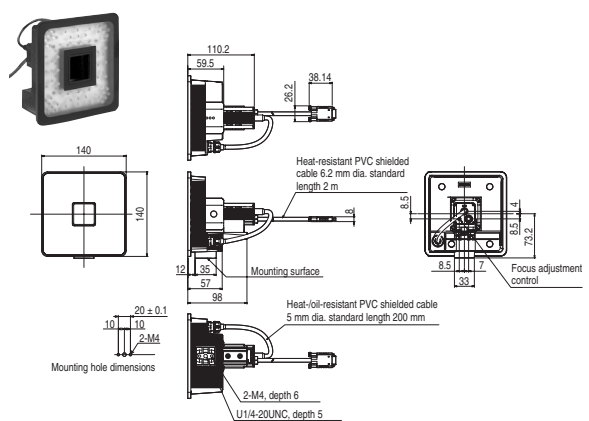
ZFX-SC90/90W



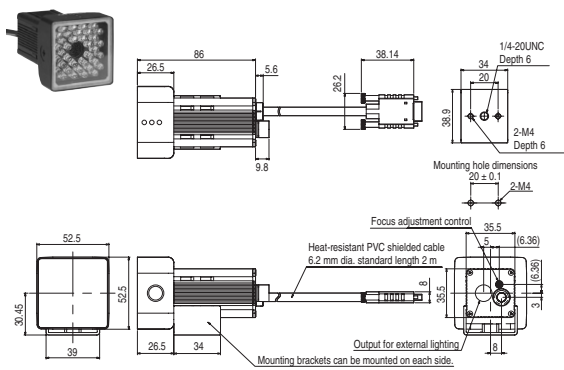
ZFX-SC10



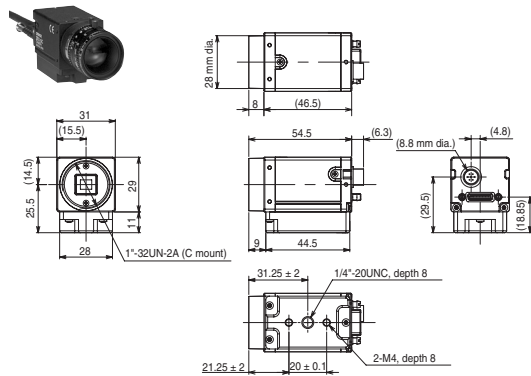
ZFX-SC150/150W



ZFX-SC50/50W

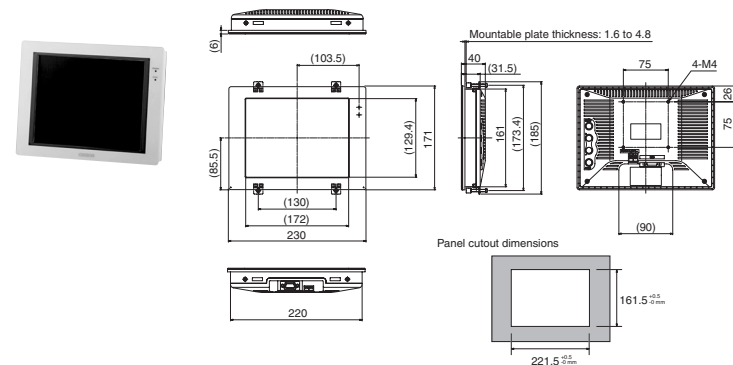


ZFX-S/SC



LCD Monitor

FZ-M08



Console

ZFX-KP

