Experience the 3rd dimension

Xpectia FZD

- Simultaneous 2D and 3D inspections
- Easy calibration
- Long distance inspections
- Real colour sensing

Basic Configuration

Controllers

Controllers

Controller Integrated with LCD

FZD-500-10/FZD-505-10

Touch Pen (accessory)

Box-type Controller

FZD-550-10/FZD-555-10

LCD Monitor

FZ-M08

Monitor Cable

FZ-VM

Input Devices

Mouse or Trackball (commercially available devices with USB interface)

Camera Cable

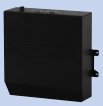
Camera Cable	FZ-VS
Bend-resistant Camera Cable	FZ-VSB
Right-angle Camera Cable	FZ-VSL
Long-distance Camera Cable	FZ-VS2
Long-distance Right-angle Camera Cable	FZ-VSL2

(Two Cables required.)

Cameras

Integrated Camera

3D Vision Camera
FZD-STC2M



Separate Cameras

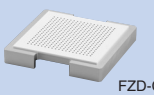
3D Camera Base Plate
FZD-CBS
FZD-CBM
FZD-CBL

Digital Camera
FZ-SC2M/FZ-S2M

(Two Cameras of the same model are required.)

High-resolution, low-distortion Lenses
FZ-LEH Series

3D Calibration Tool



FZD-CAL

Illumination

High-luminance Pattern Lighting
FZD-LTW
FZD-LTPW

CCTV Lenses
3Z4S-LE Series

Note: The Intelligent Camera and Autofocus Camera can be connected for 2D measurements.

CCTV Lenses
For High-luminance Pattern Lighting

Model

Lens model	3Z4S-LE ML-0614	3Z4S-LE ML-7527	3Z4S-LE ML-10035
Appearance			
Focal length	6 mm	75 mm	100 mm
Brightness	F1.4	F2.7	F3.5
Filter size	M27 P0.5	M30.5 P0.5	M30.5 P0.5

Extension tubes

Model	3Z4S-LE-ML-EXR
Contents	Set of 7 tubes (40 mm, 20 mm, 10 mm, 5 mm, 2.0 mm, 1.0 mm, and 0.5 mm) Maximum outer diameter: 30 mm dia.

Precautions

- Do not use the 0.5-mm, 1.0-mm, and 2.0-mm Extension Tubes attached to each other. Since these Extension Tubes are placed over the threaded section of the Lens or other Extension Tube, the connection may loosen when more than one 0.5-mm, 1.0-mm or 2.0-mm Extension Tube are used together.
- Reinforcement may be required for combinations of Extension Tubes exceeding 30 mm if the Camera is subject to vibration.

High-resolution, Low-distortion Lenses

Model

Lens model	FZ-LEH5	FZ-LEH8	FZ-LEH12	FZ-LEH16	FZ-LEH25	FZ-LEH35	FZ-LEH50	FZ-LEH75	FZ-LEH100
Appearance									
Focal length	5 mm	8 mm	12.5 mm	16 mm	25 mm	35 mm	50 mm	75 mm	100 mm
Brightness	F2.8	F1.4	F1.4	F1.4	F1.4	F2	F2.8	F2.5	F2.8
Filter size	M40.5 P0.5	M27.0 P0.5	M27.0 P0.5	M27.0 P0.5	M27.0 P0.5	M27.0 P0.5	M27.0 P0.5	M34.0 P0.5	M40.5 P0.5

Note: The 5-mm Extension Tubes (3Z4S-LE ML-EXR) cannot be used with FZ-LEH25 Lenses.

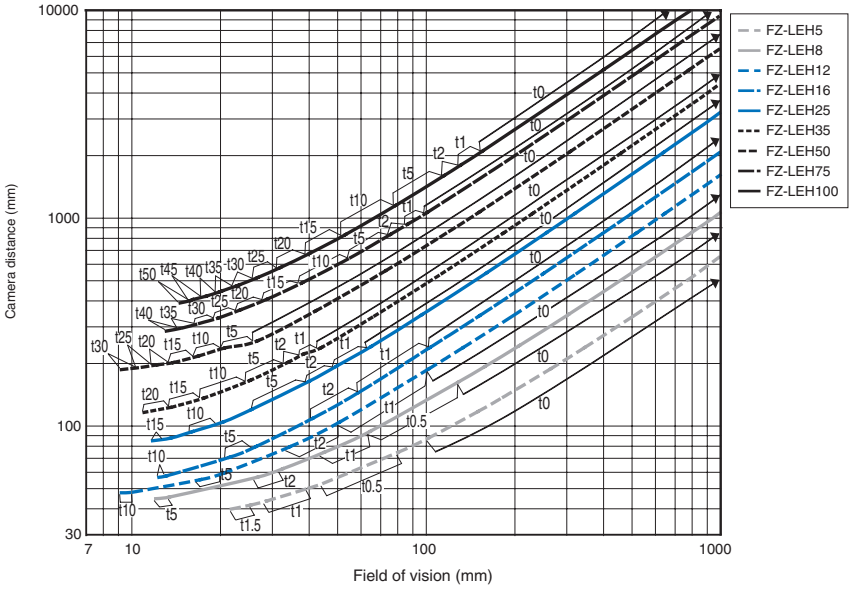
Ordering Information

Item		Description	Model	Remarks
Controllers	Controller integrated with LCD	NPN	FZD-500-10	–
		PNP	FZD-505-10	
	Box-type Controller	NPN	FZD-550-10	
		PNP	FZD-555-10	
Cameras	3D Vision Camera	Color	FZD-STC2M	Integrated Camera (installation distance: 24 cm max.)
	Digital Camera	Monochrome	FZ-S2M	2-million-pixels (lens required)
		Color	FZ-SC2M	2-million-pixels (lens required)
3D Camera Base Plate		Short-distance Version	FZD-CBS	Installation distance of up to 30 cm
		Medium-distance Version	FZD-CBM	Installation distance of 30 cm to 1 m
		Long-distance Version	FZD-CBL	Installation distance of 1 m to 2 m
Lenses	High-resolution, Low-distortion Lenses		FZ-LEH5/LEH8/LEH12/ LEH16/LEH25/LEH35/ LEH50/LEH75/LEH100	For 2-million-pixel camera
	CCTV Lenses		3Z4S-LE Series	For High-luminance Pattern Lighting
3D Calibration Tool			FZD-CAL	–
High-luminance lighting	Line pattern		FZD-LTW	White LEDs
	Custom pattern		FZD-LTPW	White LEDs
Cable	Camera Cable		FZ-VS	Cable length: 2 m, 5 m, or 10 m
	Bend-resistant Camera Cable		FZ-VSB	Cable length: 2 m, 5 m, or 10 m *1
	Right-angle Camera Cable *2		FZ-VSL	Cable length: 2 m, 5 m, or 10 m
	Long-distance Camera Cable		FZ-VS2	Cable length: 15 m
	Long-distance Right-angle Camera Cable		FZ-VSL2	Cable length: 15 m
	Cable Extension Unit		FZ-VSJ	Up to two Extension Units and three Cables can be connected. (Maximum cable length: 45 m *3)
	Monitor Cable		FZ-VM	Cable length: 2 m or 5 m
	Parallel Cable		FZ-VP	Cable length: 2 m or 5 m
Peripheral Devices	LCD Monitor		FZ-M08	For Box-type Controllers
	USB Memory	256 MB	FZ-MEM256	Capacity: 256 MB
		1 GB	FZ-MEM1G	Capacity: 1 GB
	VESA attachment		FZ-VESA	For installing Controller Integrated with LCD
	Desktop Stand		FZ-DS	For installing Controller Integrated with LCD
Mouse			–	Recommended Products (Optical Mouse) • Microsoft Corporation: Compact Optical Mouse, U81 Series
External Lighting			3Z4S-LT series	–
Strobe Controller (for FZ Series Vision Sensors)			3Z4S-LT MLEK-C100E1TS2	• Required when using a Separate Camera and High-luminance Pattern Lighting. • Required when controlling the 3Z4L-LT External Lighting with the Controller.

*1. The 10-m Cable cannot be connected to the FZD-STC2M or FZ-S_2M.
*2. This Cable has an L-shaped connector on the Camera end.
*3. The maximum cable length depends on the Camera being connected, and the model and length of the Cable being used.

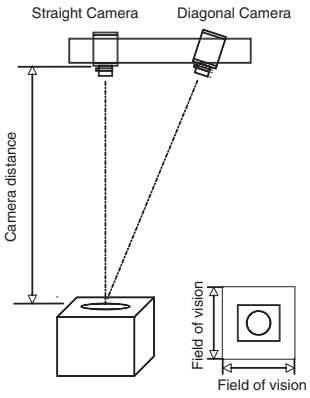
Optical Chart

Standalone Digital Camera



Meaning of Optical Chart

Select a lens for the Straight Camera according to the field of vision and camera installation distance.
Fit the Diagonal Camera with the same lens as the Straight Camera.



Note: The 5-mm Extension Tubes (3Z4S-LE ML-EXR) cannot be used with FZ-LEH25 Lenses.

Ratings and Specifications

Controllers

Model	NPN Output	FZD-500-10	FZD-550-10
	PNP Output	FZD-505-10	FZD-555-10
Connected Camera		FZD-STC2M, FZ-S2M, FZ-SC2M, FZ-S, or FZ-SC	
No. of Cameras		4 Cameras (Two Integrated Cameras)	
Processing resolution		1,600 x 1,200 (H x V) (When connected to a 2-million-pixel Camera)	
No. of scenes		32	
Number of logged images *1		With Two Cameras (one Integrated Camera) connected: 19, With Four Cameras (two Integrated Cameras) connected: 9	
Operation		Touch pen, mouse, etc.	Mouse or similar device
Settings		Create series of processing steps by editing the flowchart (Help messages provided).	
Serial communications		RS-232C/422: 1 channel	
Network communications		Ethernet 100BASE-TX/10BASE-T	
Parallel I/O		11 inputs (RESET, STEP, DSA, and DI 0 to 7), 26 outputs (RUN, BUSY, GATE, OR, READY, ERROR, STGOUT 0 to 3, and DO 0 to 15)	
Monitor interface		Integrated Controller and LCD 12.1 inch TFT color LCD (Resolution: XGA 1,024 x 768 dots)	Analog RGB video output, 1 channel
USB interface		4 channels (supports USB 1.1 and 2.0)	
Power supply voltage		20.4 to 26.4 VDC	
Current consumption	Connected to FZD-STC2M	4.9 A max.	
	Connected to FZ-S_ 2M		
Ambient temperature range		Operating: 0 to 45°C, 0 to 50°C *2, Storage: -20 to 65°C (with no icing or condensation)	
Ambient humidity range		Operating and storage: 35% to 85% (with no condensation)	
Weight		Approx. 3.4 kg	Approx. 1.9 kg
Accessories		Touch pen (one, inside the front panel), Please Read First, Instruction Manual (Setup), 6 mounting brackets	Please Read First, Instruction Manual (Setup)

*1. The number of logged images will vary then connecting multiple Cameras with different models.
*2. The operating mode can be switched from the Controller Menu settings.

Cameras

	FZD-STC2M	FZ-S2M	FZ-SC2M
Measurements	3D measurements	3D and 2D measurements	
Image elements	Interline transfer reading all pixels, 1/1.8-inch CCD image elements		
Color/Monochrome	Color	Monochrome	Color
Effective pixels	1600 × 1200 (H × V)		
Pixel size	4.4 x 4.4 μm		
Shutter function	Electronic shutter; select shutter speeds from 1/10 to 1/50,000 s		
Partial function	12 to 1200 lines		
Frame rate (image read time)	30 fps (33.3 ms)		
Field of vision	84.8 mm *1	Select a lens according to the field of vision and installation distance.	
Installation distance	240 mm		
XYZ measurement precision	±0.1 mm *2	–	
Ambient temperature range	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)		
Weight	Approx. 1.3 kg	Approx. 76 g	
Accessories	Instruction Sheet		

*1. Tolerance: ±5% max. The vertical field of vision of camera 0 at an installation distance of 240 mm.
*2. When 3D calibration is performed with an OMRON standard target and measurements are taken using the same environment (reference value).

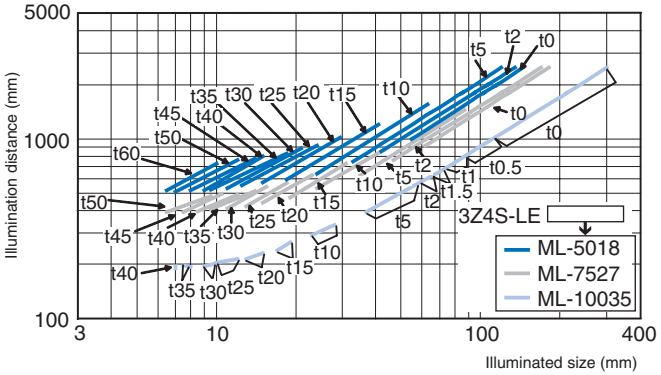
High-luminance Pattern Lighting

	FZD-LTW	FZD-LTPW
Power consumption	11 W	
Ambient temperature range	Operating: 0 to 50°C, Storage: -25°C to 60°C (with no icing or condensation)	
Ambient humidity range	Operating and storage: 35% to 85% (with no condensation)	
Installation distance	Select the CCTV lens according to the field of vision and installation distance *1	
LED Class (light section) *2	Class 2	
Weight	Approx. 450 g (Including installation base)	
Accessories	Instruction Sheet, 4 installation screws, ferrite core, hexagonal wrench.	

*1. Refer to Optical Chart
*2. Applicable standards: IEC 60825-1:1993 + A1:1997 + A2:2001, EN 60825-1:1994 + A1:2002 + A2:2001.

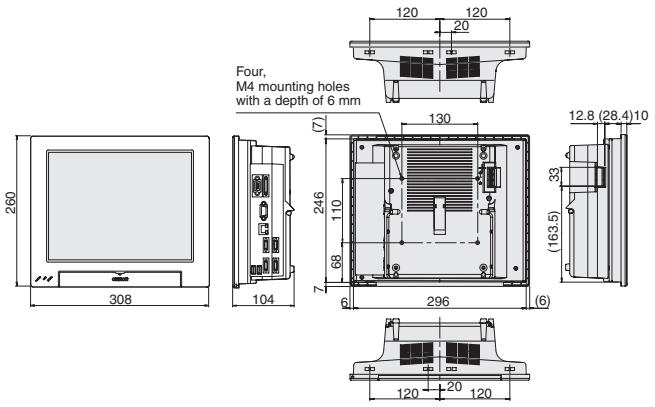
Optical Chart

For High-luminance Pattern Lighting

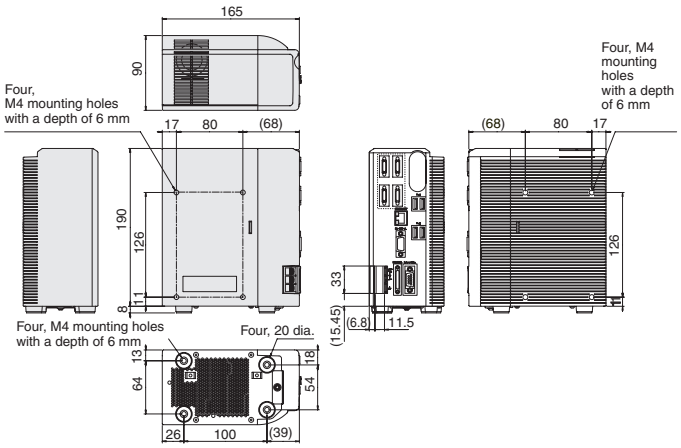


Dimensions

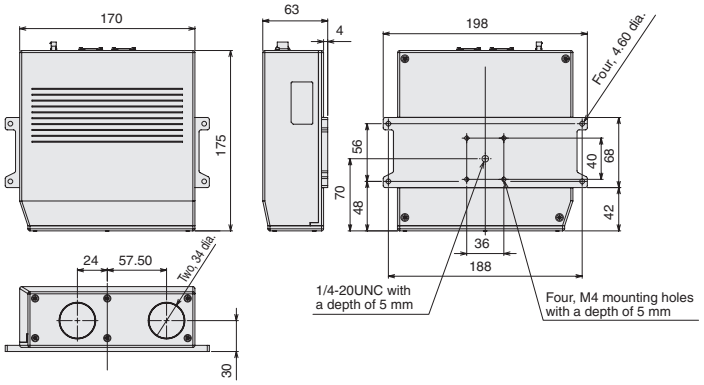
Controller Integrated with LCD
FZD-50_-10



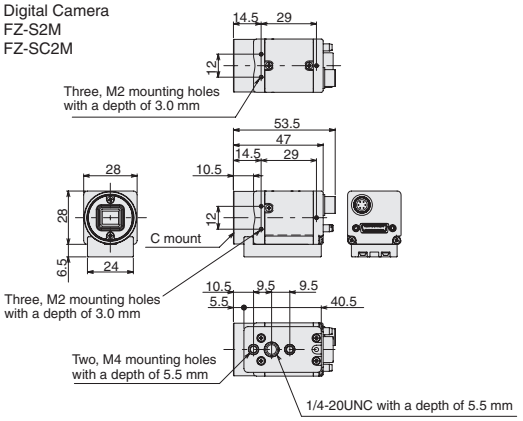
Box-type Controller
FZD-55_-10



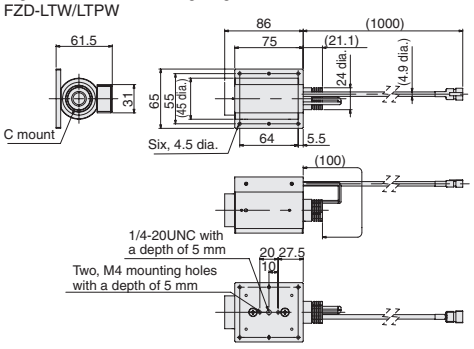
3D Vision Camera
FZD-STC2M



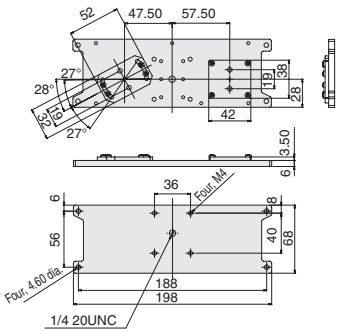
Digital Camera
FZ-S2M
FZ-SC2M



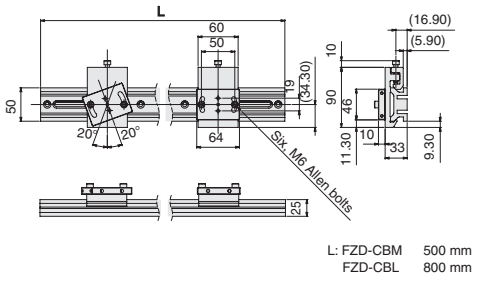
High-luminance Pattern Lighting
FZD-LTW/LTPW



3D Camera Base
FZD-CBS



3D Camera Base
FZD-CBM/CBL



Cat. No. Q25E-EN-01 **In the interest of product improvement, specifications are subject to change without notice.**

OMRON EUROPE B.V.

Wegalaan 67-69,
NL-2132 JD, Hoofddorp,
The Netherlands
Phone: +31 23 568 13 00
Fax: +31 23 568 13 88
www.industrial.omron.eu