NO:	VS-066	PRODUCT:	FZ4-H, FJ-H Vision Controllers
DATE:	October 2015	TYPE:	Discontinuation Notice

FZ4-H☐ and FJ-H Vision Controllers has been Discontinued; Replace with FH-1050 or FH-3050 Series

Discontinuation date: September 2015.

Cautions on Applying Replacements

- The camera, camera cable, lens and illumination. can be used, when FZ4 series are changed to FH series.

- The FZ4 parallel I/O cables cannot be used with the FH series. If using FZ-VP parallel I/O cable, replace it with 2 each of XW2Z-S013. If using FZ-VPX parallel I/O cable, replace it with 2 each of XW2Z-XXXEE with terminal block XW2R-X34G-T.

- When connecting FH series to an RGB analog monitor, use the DVI-I-RGB Conversion Connector Model FH-VMRGB (for FH Series only).

- Confirm the measuring time etc. before changing over to the FH Series because these series have different CPUs.

If using customized software
Contact the system integrator or OEM who provided the FJ vision controller to determine if custom software was installed. It is necessary to get the replacement FH from the same OEM to make sure the customized software is provided.

Affected Parts

Product discontinuation	Recommended replacement
Standard Controllers High-Grade Processing Items	Standard Controllers (2 core)
FZ4-H650	FH-1050
FZ4-H650-10	FH-1050-10
FZ4-H655	FH-1050
FZ4-H655-10	FH-1050-10
Quad Processing High-speed Controllers High-Grade Processing Items	High-speed Controllers (4 core)
FZ4-H1150	FH-3050
FZ4-H1150-10	FH-3050-10
FZ4-H1155	FH-3050
FZ4-H1155-10	FH-3050-10
PV Vision System, Core i5 2.4GHz Controllers High-Grade Processing Items	High-speed Controllers (4 core)
FJ-H3050	FH-3050
FJ-H3050-10	FH-3050-10
FJ-H3055	FH-3050
FJ-H3055-10	FH-3050-10

Detail of Differences

Reference Documentation

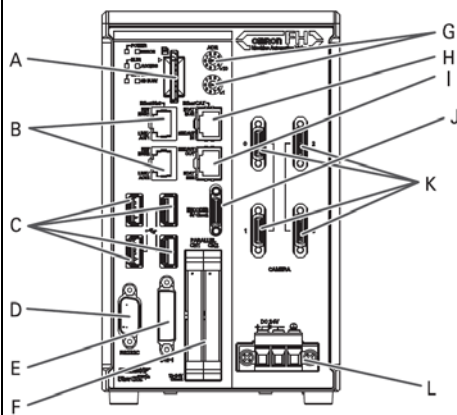| Description	Media	Publication number
FZ4 Vision System Brochure	PDF	Q189-E1-02
FH Vision System Brochure	PDF	Q77I-E-01

Body Color

Product discontinuation Model FZ4-H65x(-10)/H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
Silver	**Black**

Wiring Connections

Product discontinuation Model FZ4-H65x(-10)/H115x(-10) Model FJ-H305x(-10)

⑤ Camera connector

⑪ Ethernet connector

⑧ Monitor connector (analog RGB)

⑥⑦ Power/ground terminal

④ I/O connector (control lines, data lines)

① POWER LED
② RUN LED
③ ERROR LED

⑩ USB connector

⑨ RS-232C/RS-422 connector
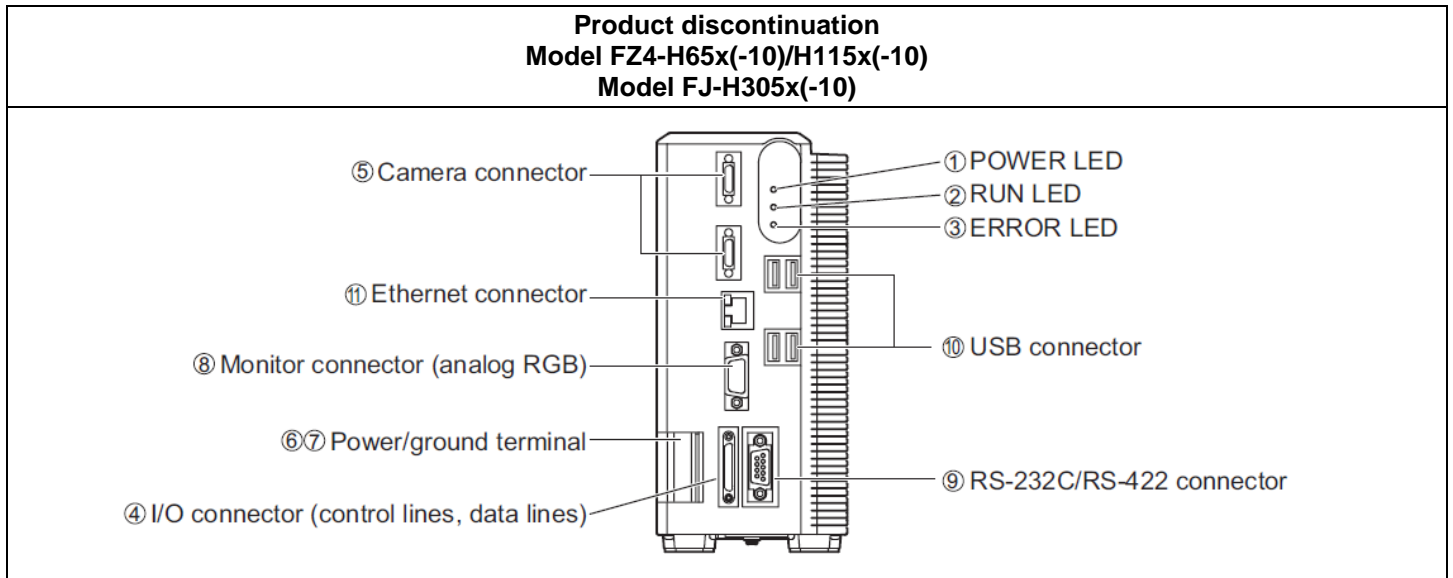
Recommended replacement
Model FH-1050(-10)
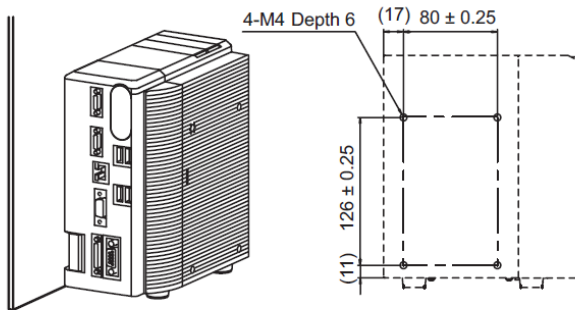## Model FH-3050(-10)

	Connector name	Description
A	SD memory card installation connector	Install the SD memory card. Do not plug or unplug the SD memory card during measurement operation. Otherwise measurement time may be affected or data may be destroyed.
B	EtherNet connector	Connect an EtherNet device.
		Camera 2ch type: Ethernet port and EtherNet/IP port are sharing use. **Camera 4ch / 8ch type:** Upper port : Ethernet port Lower port : Ethernet port and EtherNet/IP port are sharing use.
C	USB connector	Connect a USB device. Do not plug or unplug it during measurement. Measurement time might be affected otherwise.
D	RS-232C connector	Connect an external device such as a PLC.
E	DVI-I connector	Connect a monitor.
F	I/O(Parallel) connector(control lines, data lines)	Connect the controller to external devices such as a sync sensor and PLC.
G	EtherCAT address setup volume	Used to set a station address (00 to 99) as an EtherCAT communication device.
H	EtherCAT communication connector (IN)	Connect the opposed EtherCAT device.
I	EtherCAT communication connector (OUT)	Connect the opposed EtherCAT device.
J	Encoder connector	Connect an encoder.
K	Camera connector	Camera connector No. is consistent with Camera Image Input No. of Sensor controller software. Check and connect them.
L	Power supply terminal connector	Connect a DC power supply. Wire the FH Sensor Controller independently on other devices. Wire the ground line. Be sure to ground the FH Sensor Controller alone. Perform wiring using the attached terminal block connector as referring to the description of wiring that connector.

Mounting Dimensions

Product discontinuation
Model FZ4-H65x(-10)/H115x(-10)
Model FJ-H305x(-10)

● Box type

• Side mounting

• Bottom mounting

4-M4 Depth 6　(17)　80 ± 0.25　126 ± 0.25　(11)

4-M4 Depth 6　4-φ 20　64 ± 0.25 (13)　54 ± 0.25 (18)　(26)　100 ± 0.25　(39)
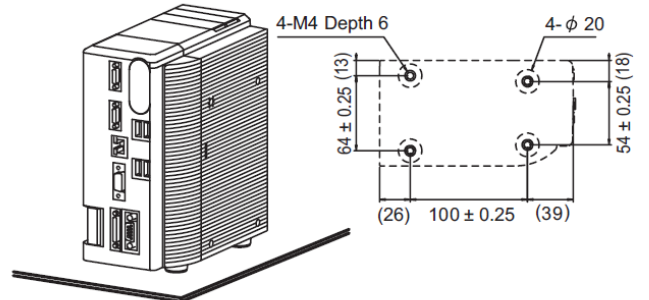
* When mounting the controller on its bottom, it must be fixed without removing the feet to reserve ventilation path.

Recommended replacement
Model FH-1050(-10)
Model FH-3050(-10)

● Side Mounting

(Unit: mm)

· Left side

4-M4 depth 4.5 (mounting screw hole)

141
143
19.5
24

· Right side

4-M4 depth 4.5 (mounting screw hole)

190
141
24
20.1
19.2
143
182.5
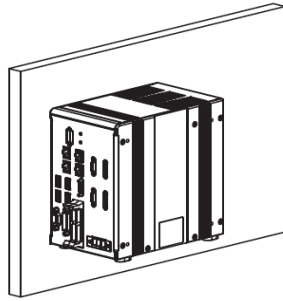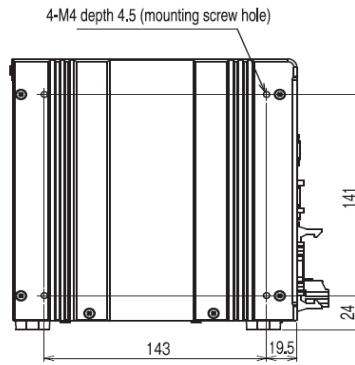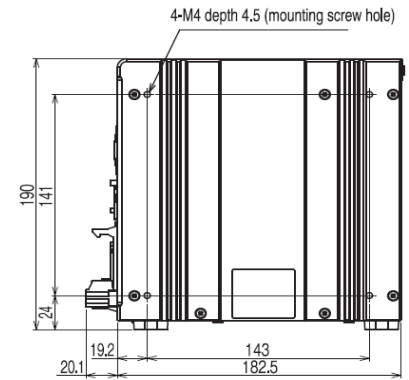
* Recommended tightening torque: 1.2N·m to 1.3N·m
*The tolerance is ± 0.2mm.

● Bottom Mounting

· Bottom

(Unit: mm)

4-M3 depth 4.5 (mounting screw hole)   Insulating leg: 4

38.1
66.2
94
26.7
148.5
10.5
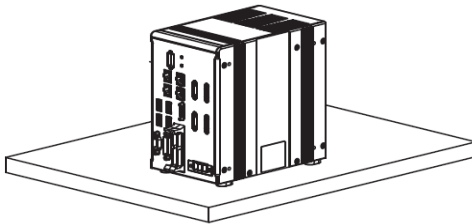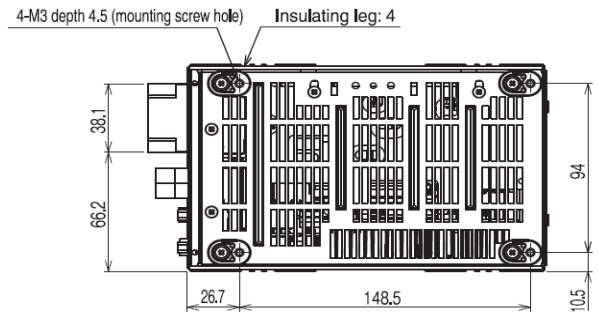
* Do not remove the Insulating leg. Fix the Insulating leg to
   secure the ventilation path.
* Recommended tightening torque: 0.54N·m to 0.6N·m
*The tolerance is ± 0.2mm.

· Camara cable mounting

Min. bending
radius

Approx. 46
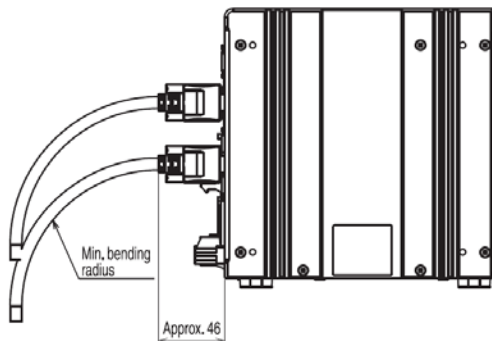
Dimensions

Product discontinuation
Model FZ4-H65x(-10)/H115x(-10) and Model FJ-H305x(-10)

Recommended replacement
Model FH-1050(-10) and Model FH-3050(-10)

5

System Configuration

Product discontinuation Model FZ4-H65x(-10)/H115x(-10) and Model FJ-H305x(-10)
 Camera connected — Input device — Mouse USB connection PC Ethernet RS-232C connected Parallel I/O PLC Analogue RGB RGB monitor Application Producer Model FJ-AP1 (Only for FJ series)

Recommended replacement Model FH-1050(-10) and Model FH-3050(-10)
 Sysmac Studio Standard Edition Vision Edition Machine Automation Controller NJ series EtherCAT junction slaves EtherCAT Cables *1 Vision System FH Sensor Controllers Lighting Controllers External Lightings Ethernet Cables *2 special cable for cameras Cameras Incremental rotary encoder special cable special cable for LCD Monitor and DVI-I -RGB Conversion Connector LCD Monitor special cable for I/O EtherCAT Cables *1 Another slave (With built-in EtherCAT slave function) Trigger input sensor PLC for I/O control Lighting Controllers

*1. To use STP (shielded twisted-pair) cable of category 5 or higher with double shielding (braiding and aluminum foil tape) for EtherCAT and RJ45 connector.
*2. To use STP (shielded twisted-pair) cable of category 5 or higher for Ethernet and RJ45 connector.

Specifications

Item		Product discontinuation Model FZ4-H65x(-10)/H115x(-10) Model FJ-H305x(-10)		Recommended replacement Model FH-1050(-10) Model FH-3050(-10)	
Model	NPN	FZ4-H650 FZ4-H1150 FJ-H3050	FZ4-H650-10 FZ4-H1150-10 FJ-H3050-10	FH-1050 FH-3050	FH-1050-10 FH-3050-10
	PNP	FZ4-H655 FZ4-H1155 FJ-H3055	FZ4-H655-10 FZ4-H1155-10 FJ-H3055-10		
Controllers type		BOX type			
No. of cameras		2 camera type	4 camera type	2 camera type	4 camera type
Connected camera		FZ-S series (When connecting 5 million-pixel cameras, up to two cameras can be connected.)		FZ-S/FH-S series	
No. of scenes		32		128	
Operation		Mouse etc.			
Settings		Create series of processing steps by editing the flowchart.			

Processing Resolution

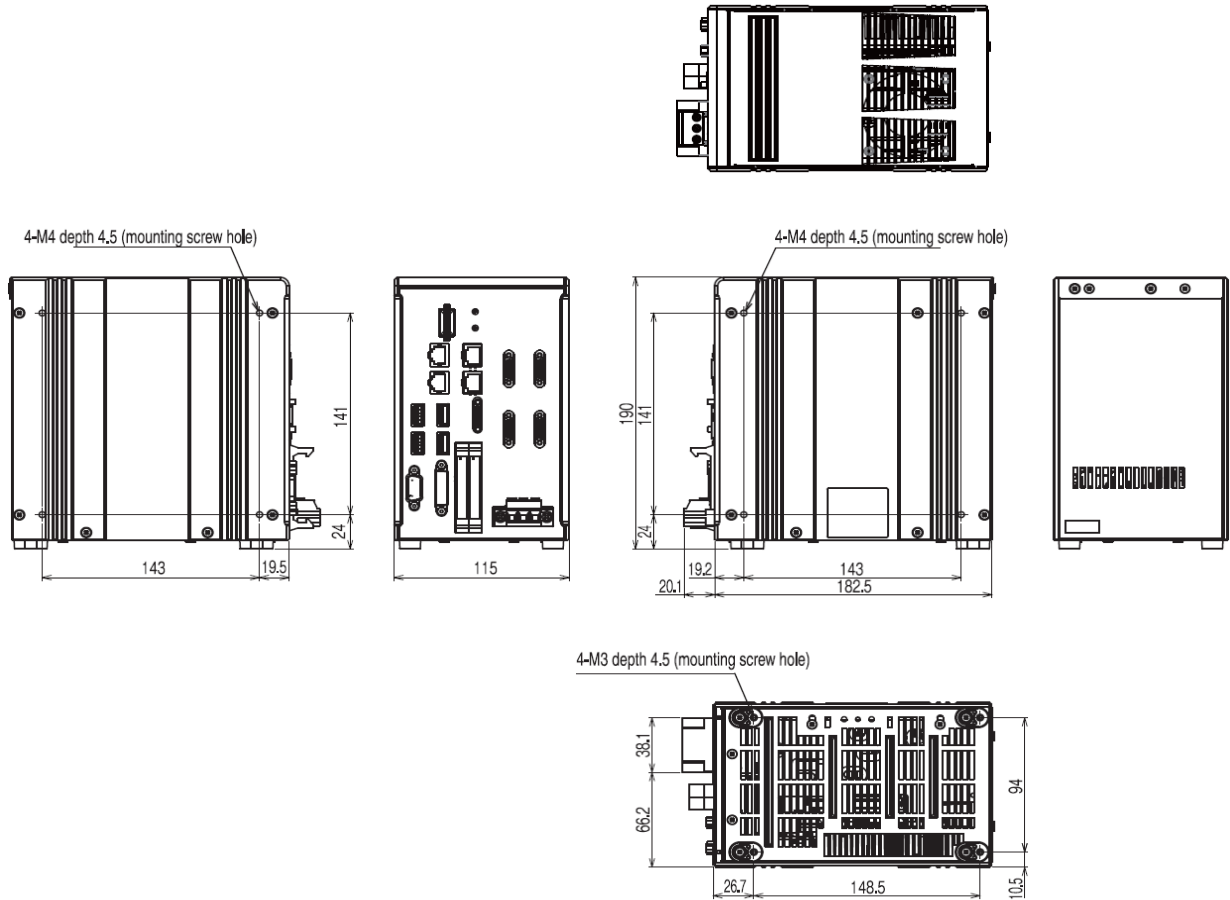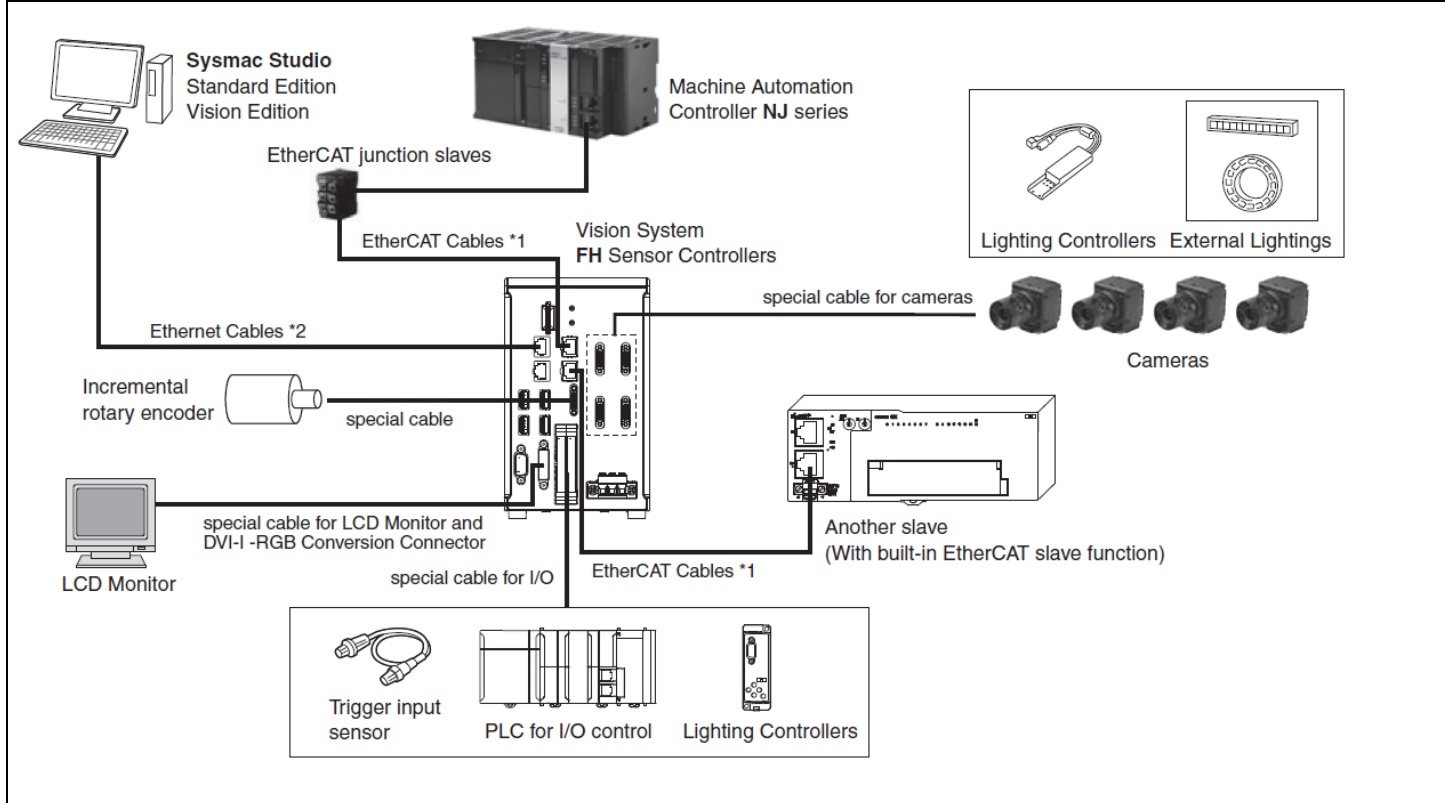| Item	Product discontinuation Model FZ4-H65x(-10)/H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
When connected to a intelligent compact camera	752(H) × 480(V)	FZ-S：752(H) × 480(V)
When connected to a 300,000-pixel camera	640(H) × 480(V)	FZ-S：640(H) × 480(V) FH-S：640(H) × 480(V)
When connected to a 2 million-pixel camera	1600(H) × 1200(V)	FZ-S：1600(H) × 1200(V) FH-S：2040(H) × 1088(V)
When connected to a 4 million-pixel camera	—	FH-S：2040(H) × 2048(V)
When connected to a 5 million-pixel camera	2448(H) × 2044(V)	FZ-S：2448(H) × 2044(V)
When connected to a 12 million-pixel camera	—	FH-S：4084(H) × 3072(V)

Number of logged images *1

Item		Product discontinuation		Recommended Replacement
Model		**FZ4-H65x** **FZ4-H65x-10**	**FZ4-H115x** **FZ4-H115x-10** **FJ-H305x** **FJ-H305x-10**	**FH-1050** **FH-1050-10** **FH-3050** **FH-3050-10**
When connected to a intelligent compact camera (FZ-S)	Connected to 1 camera	214	232	232
	Connected to 2 cameras	107	116	116
	Connected to 3 cameras	71	77	77
	Connected to 4 cameras	53	58	58
When connected to a 300,000-pixel camera (FZ-S/FH-S)	Connected to 1 camera — Color	250	270	270
	Connected to 1 camera — Monochrome	252	272	272
	Connected to 2 cameras — Color	125	135	135
	Connected to 2 cameras — Monochrome	126	136	136
	Connected to 3 cameras — Color	83	90	90
	Connected to 3 cameras — Monochrome	84	90	90
	Connected to 4 cameras — Color	62	67	67
	Connected to 4 cameras — Monochrome	63	68	68
When connected to a 2 million-pixel camera (FZ-S/FH-S)	Connected to 1 camera — Color	40	43	37(FH-S) 43(FZ-S)
	Connected to 1 camera — Monochrome	40	43	37(FH-S) 43(FZ-S)
	Connected to 2 cameras — Color	20	21	18(FH-S) 21(FZ-S)
	Connected to 2 cameras — Monochrome	20	21	18(FH-S) 21(FZ-S)
	Connected to 3 cameras — Color	13	14	12(FH-S) 14(FZ-S)
	Connected to 3 cameras — Monochrome	13	14	12(FH-S) 14(FZ-S)
	Connected to 4 cameras — Color	10	10	9(FH-S) 10(FZ-S)
	Connected to 4 cameras — Monochrome	10	10	9(FH-S) 10(FZ-S)
When connected to a 4 million-pixel Camera (FH-S)	Connected to 1 camera — Color	—	—	20(FH-S)
	Connected to 1 camera — Monochrome	—	—	20(FH-S)
	Connected to 2 cameras — Color	—	—	10(FH-S)
	Connected to 2 cameras — Monochrome	—	—	10(FH-S)
	Connected to 3 cameras — Color	—	—	6(FH-S)
	Connected to 3 cameras — Monochrome	—	—	6(FH-S)
	Connected to 4 cameras — Color	—	—	5(FH-S)
	Connected to 4 cameras — Monochrome	—	—	5(FH-S)
When connected to a 5 million-pixel Camera (FZ-S)	Connected to 1 camera — Color	11	16	16(FZ-S)
	Connected to 1 camera — Monochrome	11	16	16(FZ-S)
	Connected to 2 cameras — Color	5	8	8(FZ-S)
	Connected to 2 cameras — Monochrome	5	8	8(FZ-S)
	Connected to 3 cameras — Color	—	5	5(FZ-S)
	Connected to 3 cameras — Monochrome	—	5	5(FZ-S)
	Connected to 4 cameras — Color	—	4	4(FZ-S)
	Connected to 4 cameras — Monochrome	—	4	4(FZ-S)
When connected to a 12 million-pixel Camera (FH-S)	Connected to 1 camera — Color	—	—	6(FH-S)
	Connected to 1 camera — Monochrome	—	—	6(FH-S)
	Connected to 2 cameras — Color	—	—	3(FH-S)
	Connected to 2 cameras — Monochrome	—	—	3(FH-S)
	Connected to 3 cameras — Color	—	—	2(FH-S)
	Connected to 3 cameras — Monochrome	—	—	2(FH-S)
	Connected to 4 cameras — Color	—	—	2(FH-S)
	Connected to 4 cameras — Monochrome	—	—	2(FH-S)

＊1. The image logging capacity changes when multiple cameras of different types are connected at the same time.

Ratings

Item		Product discontinuation		Recommended replacement	
		FZ4-H65x	**FZ4-H65x-10**	**FH-1050**	**FH-1050-10**
Power supply voltage		DC20.4〜26.4V			
Current consumption (at 24.0 VDC) *1	When connected to a intelligent compact camera	5.0Amax	7.5Amax	4.7A (2 Camera)	5.0A (2 Camera) 6.5A (4 Camera)
	When connected to a 300,000-pixel camera	3.7Amax	4.9Amax	3.6A (2 Camera)	3.7A (2 Camera) 4.3A (4 Camera)
	When connected to a 2 million-pixel camera	3.7Amax	4.9Amax		
	When connected to a 4 million-pixel camera	-	-		
	When connected to a 5 million-pixel camera	3.7Amax	4.9Amax		
	When connected to a 12 million-pixel camera	-	-		
Weight		Approx 1.8kg	Approx 1.9kg	Approx 3.2kg	Approx 3.4kg
Accessories		Instruction Sheet		Instruction Sheet Instruction installation manual Terminal block connector Ferrite core	

Note 1: The current consumption when the maximum number of cameras supported by each controller is connected.
　　　If a strobe controller model is connected to a lamp, the current consumption is as high as when an intelligent camera is connected.

Item		Product discontinuation		Recommended replacement	
		FZ4-H115x FJ-H305x	**FZ4-H115x-10 FJ-H305x-10**	**FH-3050**	**FH-3050-10**
Power supply voltage		DC20.4〜26.4V			
Current consumption (at 24.0 VDC) *1	When connected to a intelligent compact camera	5.0Amax	7.5Amax	5.0A (2 Camera)	5.4A (2 Camera) 7.0A (4 Camera)
	When connected to a 300,000-pixel camera	3.7Amax	4.9Amax	4.1A (2 Camera)	4.2A (2 Camera) 4.8A (4 Camera)
	When connected to a 2 million-pixel camera	3.7Amax	4.9Amax		
	When connected to a 4 million-pixel camera	-	-		
	When connected to a 5 million-pixel camera	3.7Amax	4.9Amax		
	When connected to a 12 million-pixel camera	-	-		
Weight		Approx 1.8kg	Approx 1.9kg	Approx 3.2kg	Approx 3.4kg
Accessories		Instruction Sheet		Instruction Sheet Instruction installation manual Terminal block connector Ferrite core	

Note 1: The current consumption when the maximum number of cameras supported by each controller is connected.
　　　If a strobe controller model is connected to a lamp, the current consumption is as high as when an intelligent camera is connected.

Operation Environment

Item		Product discontinuation Model FZ4-H65x(-10) Model FZ4-H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
Ambient temperature range	Operating	0 to 50°C	
	Storage	-20 to 65°C (with no icing or condensation)	
Ambient humidity range	Operating	35 to 85%RH (with no condensation)	
	Storage		

External Interface

Item	Product discontinuation		Recommended replacement
Model	FZ4-H65x(-10)	FZ4-H115x(-10) FJ-H305x(-10)	FH-1050(-10) FH-3050(-10)
Serial communications	RS-232C/422：1CH		RS-232C：1CH
Ethernet communications	Ethernet 100BASE-TX/10BASE-T		Ethernet 1000BASE-T
EtherNet/IP communications	Use Ethernet port 　Transmission Speed：100 Mbps 　(100BASE-TX)		Use Ethernet port 　Transmission Speed：1 Gbps 　(1000BASE-T)
EtherCAT communications	--		EtherCAT dedicated protocol (100BASE-TX)
Parallel I/O interface	13 inputs 　RESET, 　STEP0/ENCTRIG_Z0, 　DSA0, ENCTRIG_A0, 　ENCTRIG_B0, 　DI0 to 7, 26 outputs 　RUN, 　BUSY0, 　GATE0, 　OR0, 　READY0, 　ERROR, 　STGOUT0 to 3, 　DO0 to 15 *STGOUT 2 to 3 only 　for camera 4 ch type	17 inputs 　RESET, 　STEP0/ENCTRIG_Z0, 　STEP1/ENCTRIG_Z1, 　DSA0 to 1, 　ENCTRIG_A0 to 1, 　ENCTRIG_B0 to 1, 　DI0～7 29 outputs 　RUN/BUSY1, 　BUSY0, 　GATE0 to 1, 　OR0 to 1, 　READY0 to 1, 　ERROR, 　STGOUT0 to 3, 　DO0 to 15 *STGOUT 2 to 3 only 　for camera 4 ch type	・In the 2-line random trigger mode 　17 inputs 　　STEP0/ENCTRIG_Z0, 　　STEP1/ENCTRIG_Z1, 　　ENCTRIG_A0~1, 　　ENCTRIG_B0~1, 　　DSA0~1,DI0~7,DI_LINE0 　37 outputs 　　RUN0~1,READY0~1, 　　BUSY0~1,OR0~1, 　　ERROR0~1,GATE0~1, 　　STGOUT0/SHTOUT0 　　STGOUT1/SHTOUT1 　　STGOUT2~7,DO0~15,ACK ・In the 5-line to 8-line random 　trigger mode 　19 inputs 　　STEP0~7,DI_LINE0~2, DI0~7 　34 outputs 　　READY0~7,BUSY0~7, 　　OR0~7, ACK,ERROR, 　　STGOUT/SHTOUT0~7
Encoder interface	--		RS422-A line driver level. Phase A/B :single-phase 4MHz 　(multiplying phase difference of 　1MHz by 4 times), Phase Z :1MHz
Monitor interface	Analogue RGB video output,1 channel (Resolution : XGA 1,024 x 768 dots)		DVI-I(Single Link) output IF x 1ch
USB interface	4 channels (supports USB 1.1 and 2.0)		4 channels 　(supports USB 1.1 and 2.0)
SD card interface	--		SDHC card of Class4 or higher rating is recommended.

Processing Items

Item		Product discontinuation Model FZ4-H65x(-10) Model FZ4-H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
Inspections / Measurement	Search	YES	YES
	Flexible Search	YES	YES
	Sensitive Search	YES	YES
	ECM Search	YES	YES
	EC Circle Search	YES	YES
	Shape Search+	YES	NO
	Shape Search II	YES	YES
	Shape Search III	NO	YES
	EC Corner	YES	YES
	EC Cross	NO	YES
	Classification	NO	YES
	Edge Position	YES	YES
	Edge Pitch	YES	YES
	Scan Edge Position	YES	YES
	Scan Edge Width	YES	YES
	Circular Scan Edge Position	YES	YES
	Circular Scan Edge Width	YES	YES
	Intersection	NO	YES
	Color Data	YES	YES
	Gravity and Area	YES	YES
	Labeling	YES	YES
	Label Data	YES	YES
	Labeling+	YES	NO
	Defect	YES	YES
	Precise Defect	YES	YES
	Fine Matching	YES	YES
	Character Inspection	YES	YES
	Date Verification	YES	YES
	Model Dictionary	YES	YES
	Barcode *1	NO	YES
	Barcode+ *2	YES	NO
	2D Code *3	YES	YES
	2D Code+ *3	YES	NO
	OCR	NO	YES
	OCR User Dictionary	NO	YES
	Circle Angle	YES	YES
	Glue Bead Inspection	NO	YES

*1 Bar Codes that can be read:
   JAN/EAN/UPC (including add-on codes), Code 39, Codabar (NW-7), IFT (Interleaved 2 of 5), Code 93,
   Code128, GS1-128, GS1 DataBar (RSS-14/RSS Limited/RSS Expanded), PhamaCode

*2 Bar Codes that can be read:
   JAN/EAN/UPC (including add-on codes), Code 39, Codabar (NW-7), IFT (Interleaved 2 of 5), Code 93,
   Code128, GS1 DataBar (RSS-14/RSS Limited/RSS Expanded)

*3 2D Codes that can be read: Data Matrix (ECC200), QR Code

Processing Items

Item		Product discontinuation Model FZ4-H65x(-10) Model FZ4-H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
Input image	Camera Image Input	YES	YES
	Camera Image Input FH	NO	YES
	Camera Image Input HDR	YES	YES
	Camera Image Input HDR Lite	YES	YES
	Camera Switching	YES	YES
	Measurement Image Switching	YES	YES
Correcting Images	Position compensation	YES	YES
	Trapezoidal Correction+	YES	NO
	Filtering	YES	YES
	Background Suppression	YES	YES
	Brightness Correct filter	YES	YES
	Color Gray filter	YES	YES
	Extract Color Filter	YES	YES
	Anti Color shading	YES	YES
	Stripes Removal Filter+	YES	NO
	Stripes Removal FilterⅡ	YES	YES
	Halation Cut+	YES	NO
	Panorama+	YES	NO
	Polar Transformation	YES	YES
	Trapezoidal Correction	NO	YES
	Machine Simulator	NO	YES
	Image Subtraction	NO	YES
	Advanced Filter	NO	YES
	Panorama	NO	YES
Branching processing	Conditional Branch	YES	YES
	End	YES	YES
	DI branch	YES	YES
	Control Flow Normal	NO	YES
	Control Flow PLC Link	NO	YES
	Control Flow Parallel	NO	YES
	Control Flow Fieldbus	NO	YES
	Selective Branch	NO	YES
Outputting results	Serial Data Output	YES	YES
	Parallel Data Output	YES	YES
	Parallel Judgment Output	YES	YES
	Fieldbus Data Output	YES	YES
Displaying results on the monitor	Result Display	YES	YES
	Display Image File	YES	YES
	Display Last NG Image	YES	YES

Processing Items

Item		Product discontinuation Model FZ4-H65x(-10) Model FZ4-H115x(-10) Model FJ-H305x(-10)	Recommended replacement Model FH-1050(-10) Model FH-3050(-10)
Assisting inspections / Measurement	Unit Macro	NO	YES
	Unit calculation macro	NO	YES
	Calculation	YES	YES
	Line Regression	YES	YES
	Circle Regression	YES	YES
	Calibration+	YES	NO
	Precise Calibration	YES	YES
	User Data	YES	YES
	Set Unit data	YES	YES
	Get Unit Data	YES	YES
	Set Unit Figure	YES	YES
	Get Unit Figure	YES	YES
	Trend Monitor	YES	YES
	Image Logging	YES	YES
	Image Conversion Logging	YES	YES
	Data Logging	YES	YES
	Elapsed Time	YES	YES
	Wait	YES	YES
	Focus	YES	YES
	Iris	YES	YES
	Parallelize	NO	YES
	Parallelize Task	NO	YES
	Statistics	NO	YES
	Reference Calib Data	NO	YES
	Position Data calculation	NO	YES
	Stage Data	NO	YES
	Robot Data	NO	YES
	Vision Master Calibration	NO	YES
	PLC Master Calibration	NO	YES
	Convert Position Data	NO	YES
	Movement Single Position	NO	YES
	Movement Multi Points	NO	YES
	Detection Point	NO	YES
	Camera calibration	NO	YES
	Data Save	NO	YES