Image Processing System

OMRON

Installation Instruction Manual for FH series

3104308-0A

Precautions for Compliance with UL Standards and CSA Standards

Notice to Users of the FH series in the USA and Canada

Please observe the following installation information in addition to the general information in the instruction manuals when installing the product in the USA or Canada in order to use the product under UL and CSA-certified conditions. These conditions are required by NFPA 70, National Electrical Code in the USA and the Canadian Electrical Code, Part I in Canada and may different from information given in the product manuals and safety precautions. This manual must be consulted in all cases in order to understand the risk of potential HAZARDS and the actions which must be taken to avoid them.
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

● Input / Output
Input I/O - SELV DC12-24V, MAX 25 mA/p
Output I/O - SELV DC12-24V, 45 mA/p
Encoder - SELV DC5V, 10 mA/p
Power supply output - DC13 V, 1.1 A rms/output

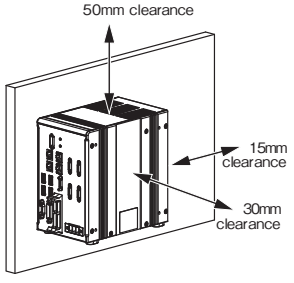
● Wiring for Power Input
- Use SELV Power Source. Prepare a power supply separately for main source, I/O common, and encoder.
- Do not use ferrule terminals for field wiring.
- Tightening torque of the terminals : 7 Lb In. (0.8 Nm)
- Wire range : AWG 16 to 10

● Environment
- Ambient Temperature : 0 to 50 ℃
- Ambient Humidity : 35 to 85 %
- Operating Voltage Range: 85 to 110 % of the rated voltage
- Indoor use only
- Altitude: Max. 2000 m
- Pollution Degree 2

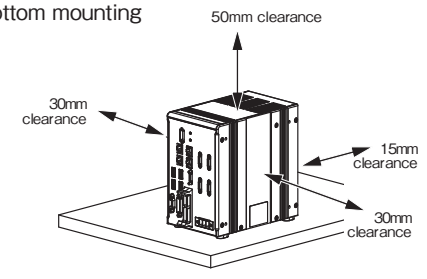
Power Terminal Connector	Function
+	Connect to the DC output terminal +V of 24 VDC.
-	Connect to the DC output terminal -V of 24 VDC.
⏚	Connect to the earth.

● Mounting
Provide a clearance of at least 50 mm above the controller for adequate ventilation. For the right and left sides, provide a clearance of at least 30 mm away from other devices. For the back side, provide a clearance of at least 15 mm away from other devices.

Side mounting



Bottom mounting



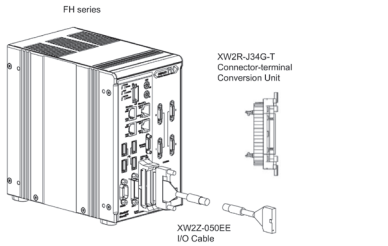
● I/O connector
Connection example
-Cable-
XW2Z-S013-2 / XW2Z-S013-5 / XW2Z-S013-15
XW2Z-050EE / XW2Z-100EE / XW2Z-150EE / XW2Z-200EE / XW2Z-300EE / XW2Z-500EE
-Connector-terminal Conversion Unit-
XW2R-J34G-T / XW2R-E34G-T / XW2R-P34G-T

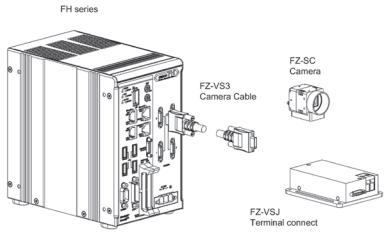
	No	I/O	XW2Z-S013 -□ Wire color	XW2R-□34G-T Connector-Terminal Block Conversion Units, General-purpose devices	Signal name				Remarks
					In the 1-line mode	In the 2-line random mode	In the 3 to 4-line random mode	In the 5 to 8-line random mode	
CN1	1	---	Red	A1	COMIN0				COMIN0 to 2: Common 0 to 2 for input signals COMOUT0 to 3: Common 0 to 3 for output signals DI0 to 7: Command inputs DILINE0 to 2: Command inputs (line specified) DSA0 to 1: Data transmission request ENCTRIG_A0 to 1: Encoder trigger input (phase A) ENCTRIG_B0 to 1: Encoder trigger input (phaseB) ENCTRIG_Z0 to 1: Encoder trigger input (phase Z) STEP0 to 7: Measurement trigger input ACK: Instruction execution completion flag BUSY0 to 7: ON during processing DO0 to 15: Data output ERROR: ON when an error occurs *4 ERROR0 to 3: ON when an error occurs GATE0 to 1: ON during configured output time OR0 to 7: Overall judgement result READY0 to 7: ON when image input is allowed RUN0 to 3: ON while the layout turned on output setting is displayed SHTOUT0 to 7: Shutter output STGOUT0 to 7: Strobe trigger output *3
	2	---	Gray	B1	COMIN1				
	3	---	Gray	A2	Vacant				
	4	IN	Gray	B2	STEP0/ENC TRIG_Z0*1	STEP0/ENC TRIG_Z0*2	STEP0	STEP0	
	5	IN	Green	A3	Unused*5	STEP0/ENC TRIG_Z1*2	STEP1	STEP1	
	6	IN	Gray	B3	Unused*5	Unused*5	STEP2	STEP2	
	7	IN	Gray	A4	Unused*5	Unused*5	STEP3	STEP3	
	8	IN	Gray	B4	ENCTRIG_A 0*1	ENCTRIG_A 0*2	Unused*5	Unused*5	
	9	IN	Gray	A5	Unused*5	Unused*5	Unused*5	STEP4	
	10	IN	Green	B5	Unused*5	Unused*5	Unused*5	STEP5	
	11	IN	Gray	A6	Unused*5	ENCTRIG_A 1*2	Unused*5	STEP6	
	12	IN	Gray	B6	Unused*5	ENCTRIG_B 1*2	Unused*5	STEP7	
	13	IN	Gray	A7	ENCTRIG_B 0*1	ENCTRIG_B 0*2	Unused*5	Unused*5	
	14	IN	Gray	B7	Unused*5	DILINE0			
	15	OUT	Green	A8	RUN0	RUN0	RUN0	READY0	
	16	OUT	Gray	B8	READY0	READY0	READY0	BUSY0	
	17	OUT	Gray	A9	BUSY0	BUSY0	BUSY0	OR0	
	18	OUT	Gray	B9	OR0	OR0	OR0	READY1	
	19	OUT	Gray	A10	ERROR0	ERROR0	ERROR0	BUSY1	
	20	OUT	Green	B10	STGOUT0*3 /SHTOUT0				
	21	OUT	Gray	A11	STGOUT1*3 /SHTOUT1				
	22	OUT	Gray	B11	STGOUT2*3 /SHTOUT2				
	23	OUT	Gray	A12	STGOUT3*3 /SHTOUT3				
	24	OUT	Gray	B12	STGOUT4*3 /SHTOUT4				
	25	OUT	Green	A13	STGOUT5*3 /SHTOUT5				
	26	OUT	Gray	B13	STGOUT6*3 /SHTOUT6				
	27	OUT	Gray	A14	STGOUT7*3 /SHTOUT7				
	28	OUT	Gray	B14	Unused*5	RUN1	RUN1	OR1	
	29	OUT	Gray	A15	Unused*5	READY1	READY1	READY2	
	30	OUT	Green	B15	Unused*5	BUSY1	BUSY1	BUSY2	
	31	OUT	Gray	A16	Unused*5	OR1	OR1	OR2	
	32	OUT	Gray	B16	Unused*5	ERROR1	ERROR1	READY3	
	33	---	Gray	A17	COMOUT0				
	34	---	Gray	B17	COMOUT1				

	No	I/O	XW2Z-S013 -□ Wire color	XW2R-□34G-T Connector-Terminal Block Conversion Units, General-purpose devices	Signal name				Remarks
					In the 1-line mode	In the 2-line random mode	In the 3 to 4-line random mode	In the 5 to 8-line random mode	
CN2	35	---	Red	A1	COMIN2				COMIN0 to 2: Common 0 to 2 for input signals COMOUT0 to 3: Common 0 to 3 for output signals DI0 to 7: Command inputs DILINE0 to 2: Command inputs (line specified) DSA0 to 1: Data transmission request ENCTRIG_A0 to 1: Encoder trigger input (phase A) ENCTRIG_B0 to 1: Encoder trigger input (phaseB) ENCTRIG_Z0 to 1: Encoder trigger input (phase Z) STEP0 to 7: Measurement trigger input ACK: Instruction execution completion flag BUSY0 to 7: ON during processing DO0 to 15: Data output ERROR: ON when an error occurs *4 ERROR0 to 3: ON when an error occurs GATE0 to 1: ON during configured output time OR0 to 7: Overall judgement result READY0 to 7: ON when image input is allowed RUN0 to 3: ON while the layout turned on output setting is displayed SHTOUT0 to 7: Shutter output STGOUT0 to 7: Strobe trigger output *3
	36	---	Gray	B1	Vacant				
	37	IN	Gray	A2	DSA0	DSA0	DILINE1	DILINE1	
	38	IN	Gray	B2	Unused*5	DSA1	Unused*5	DILINE2	
	39	IN	Green	A3	DI0				
	40	IN	Gray	B3	DI1				
	41	IN	Gray	A4	DI2				
	42	IN	Gray	B4	DI3				
	43	IN	Gray	A5	DI4				
	44	IN	Green	B5	DI5				
	45	IN	Gray	A6	DI6				
	46	IN	Gray	B6	DI7				
	47	---	Gray	A7	Vacant				
	48	OUT	Gray	B7	ACK				
	49	OUT	Green	A8	GATE0	GATE0	RUN2	BUSY3	
	50	OUT	Gray	B8	Unused*5	GATE1	READY2	OR3	
	51	OUT	Gray	A9	DO0	DO0	BUSY2	READY4	
	52	OUT	Gray	B9	DO1	DO1	OR2	BUSY4	
	53	OUT	Gray	A10	DO2	DO2	ERROR2	OR4	
	54	OUT	Green	B10	DO3	DO3	RUN3	READY5	
	55	OUT	Gray	A11	DO4	DO4	READY3	BUSY5	
	56	OUT	Gray	B11	DO5	DO5	BUSY3	OR5	
	57	OUT	Gray	A12	DO6	DO6	OR3	READY6	
	58	OUT	Gray	B12	DO7	DO7	ERROR3	BUSY6	
	59	OUT	Green	A13	DO8	DO8	Unused*5	OR6	
	60	OUT	Gray	B13	DO9	DO9	Unused*5	READY7	
	61	OUT	Gray	A14	DO10	DO10	Unused*5	BUSY7	
	62	OUT	Gray	B14	DO11	DO11	Unused*5	OR7	
	63	OUT	Gray	A15	DO12	DO12	Unused*5	Unused*5	
	64	OUT	Green	B15	DO13	DO13	Unused*5	Unused*5	
	65	OUT	Gray	A16	DO14	DO14	Unused*5	Unused*5	
	66	OUT	Gray	B16	DO15	DO15	Unused*5	ERROR*4	
	67	---	Gray	A17	COMOUT2				
	68	---	Gray	B17	COMOUT3				

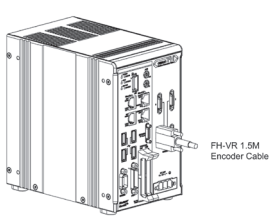
*1. To use a measurement trigger input, use the STEP signal. To use an encoder input, use ENCTRIG_A0/B0/Z0.
*2. In the 2-line random mode, to use a measurement trigger input and a line of encoder input, use ENCTRIG_A0/B0/Z0 and STEP1.
*3. This is the signal used when using a strobe signal for the FH Sensor Controller.
*4. Error signal which is used Line 0 to 8.
*5. Do not connect anything for Unused.

● Camera connector
Connection example
-Cable-
FZ-VS3 2M / FZ-VS3 3M / FZ-VS3 5M / FZ-VS3 10M
FZ-VSB3 2M / FZ-VSB3 3M / FZ-VSB3 5M / FZ-VSB3 10M
FZ-VSL3 2M / FZ-VSL3 3M / FZ-VSL3 5M / FZ-VSL3 10M
FZ-VSLB3 2M / FZ-VSLB3 3M / FZ-VSLB3 5M / FZ-VSLB3 10M
FZ-VS4 15M
FZ-VSL4 15M
-Camera-
FZ-SC / FZ-S
FZ-SFC / FZ-SF / FZ-SPC / FZ-SP
FZ-SHC / FZ-SH
FZ-SC2M / FZ-S2M
FZ-SC5M2 / FZ-S5M2
FZ-SQ010F / FZ-SQ050F / FZ-SQ100F / FZ-SQ100N
FZ-SC5M3/FZ-S5M3
FH-SC / FH-SM
FH-SC02 / FH-SM02
FH-SC04 / FH-SM04
FH-SC12 / FH-SM12
FH-SC05R / FH-SM05R
FH-SCX/FH-SMX
FH-SCX05/FH-SMX05
FH-SCX12/FH-SMX12
FH-SC21R/FH-SM21R
-Terminal connect -
FZ-VSJ





● Encoder connector
Connection example
-Cable-
FH-VR 1.5M



● Enclosure type
You must use this product in a control board.
Enclosure type: IP20
● Connection
You must connect an encoder and RS-232C interface in the control board.
● Power supply wires
Please select the wire by which rated temperture is 80 ℃ or above.