EZS and EZC Series

Specifications

●Controller Mode

Item	Specification
Type	Stored-data type
Number of Control Axes	1 axis
Maximum Speed	300.000 mm/s
Number of Motion Profiles	63
Positioning Mode	Absolute mode (absolute-position specification) Incremental mode (relative-position specification)
Motion Profile Setting Method	Data is set using the teaching pendant (EZT1) or data editing software (EZED1).
Data Execution Mode	Selective execution / Sequential execution
Travel Amount Setting Range	Absolute mode: -9999.990 to +9999.990 mm (value set in units of 0.015 mm) Incremental mode: -9999.990 to +9999.990 mm (value set in units of 0.015 mm)
Starting Speed	0.015 to 250.000 mm/s (value set in units of 0.015 mm/s) *Data can be set using the teaching pendant or data editing software.
Operating Speed	0.015 to 300.000 mm/s (value set in units of 0.015 mm/s) *Data can be set using the teaching pendant or data editing software.
Acceleration/Deceleration	0.015 to 150.000 m/s² (value set in units of 0.015 m/s²) *Data can be set using the teaching pendant or data editing software.
Control Mode	External input mode (EXT)　Program mode (PRG) Parameter mode (PAR)　Test mode (TST)
Operation Mode	Positioning operation　Return-to-home operation Linked operation (a max of 63 profiles)　Push-motion operation
Input Signal	24 VDC photocoupler isolated input Input resistance 4.7 Ω
Output Signal	Photocoupler-connected transistor output 24 VDC, 25 mA or less
Power Supply Input	24 VDC ±10%　4.0 A (Controller only: 3.5 A) *Take into account safety margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.
Program Backup	EEPROM

●Driver Mode

Item	Specification
Maximum Response Frequency	20 kHz (Pulse Duty 50%)
Pulse-Input Mode mode	Switchable between 1-pulse input mode and 2-pulse input mode (switching via DIP switches on front panel)
Input Signal ●CW Pulse Signal ●CCW Pulse Signal	5 VDC photocoupler isolated input, input resistance 220 Ω negative logic pulse input (CW Pulse, CCW Pulse) 24 VDC photocoupler isolated input, input resistance 4.7 k Ω (ACL, RUN0～RUN2, STOP0～STOP2, C.OFF) Pulse width 2 μs or more, rise/fall time 2 μs or less (The operation command pulse is input in the 1-pulse input mode.) Pulse width 2 μs or more, rise/fall time 2 μs or less (The direction of movement is input in the 1-pulse input mode.)
Output Signal	Photocoupler-connected transistor output (The TIM signal uses a photocoupler output.) 24 VDC, 25 mA or less
Power Supply Input	24 VDC ±10%　4.0 A (Controller only: 3.5 A) *Take into account safety margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.

●General Specifications

Item	Specification
Insulation Resistance	100 MΩ minimum when measured by a 500 V DC megger between the following places; ●Protective earth terminal – Power input terminal ●Protective earth terminal – Signal input terminal
Dielectric Strength	Sufficient to withstand the following for one minute; ●Protective earth terminal – Power input terminal AC 0.5 kV 50Hz ●Protective earth terminal – Signal input terminal AC 0.5 kV 50Hz
Ambient Temperature	0 °C to +40 °C (nonfreezing)
Ambient Humidity	85% or below (noncondensing)

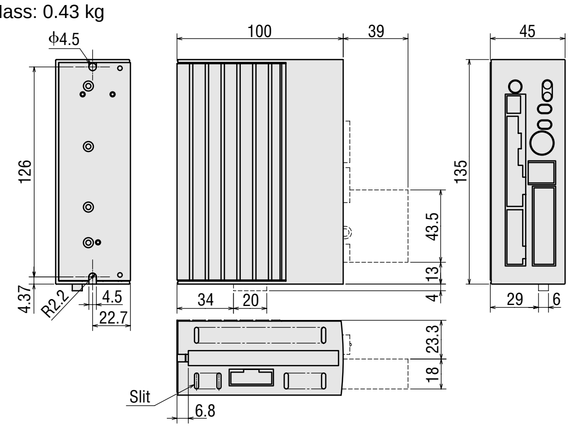
Battery Specifications (for the absolute type only)

Item	Specification
Battery Type	Cylindrical sealed nickel-cadmium storage cell
Nominal Voltage	1.2 V
Rated Capacity	10000 mAh
Mass	430 g
Life	Approx. 4 years *1
Charge Time	48 hours *1
Data Retention Period *1 *2	Standard backup: Approx. 96 hours Optional backup: Approx. 70 hours
Ambient Temperature	0 °C to +40 °C (nonfreezing)
Ambient Humidity	20 to 85% (noncondensing)

*1 At an ambient temperature of 20℃
*2 After the power is cut off with the battery fully charged

Dimensions unit: mm

Mass: 0.43 kg



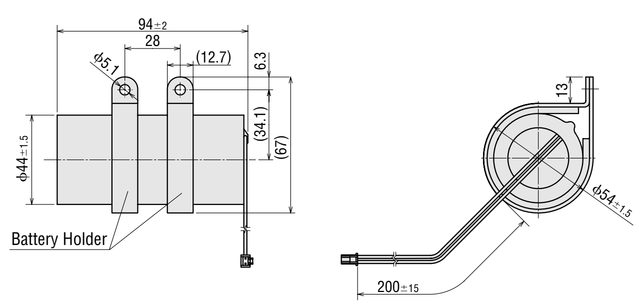
●Accessories (common to incremental and absolute type)

I/O Connector Case (1 Piece)　54331-1361 (MOLEX)
I/O Connector (1 Piece)　54306-3619 (MOLEX)

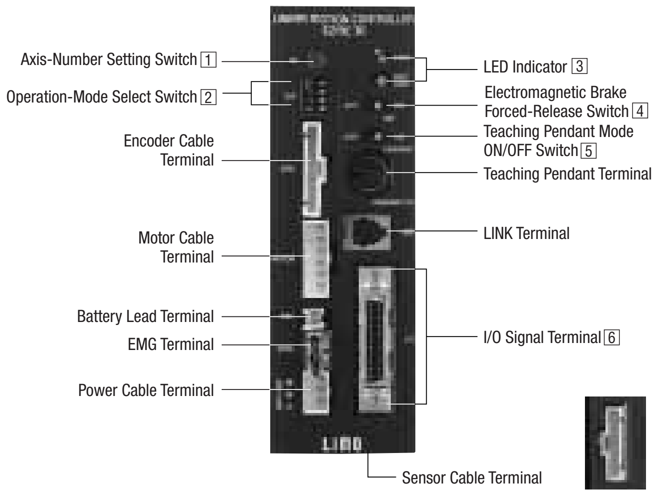
Power Supply Cable (1 Piece)　600 mm

Name	Conductor
+24V	AWG20
GND	AWG20
FG	AWG18

Battery (Supplied with absolute type models. Battery holder provided.)



Names and Functions of Parts

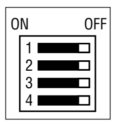


1 Axis-Number Setting Switch

Display	Function
ID	Set controller axis number

2 Operation-Mode Select Switch

Display	Function
1	Invalid (not used)
2	
3	Set Pulse Input Mode (in driver mode) ON: 1-Pulse Input Mode OFF: 2-Pulse Input Mode
4	Operation Modes ON: Driver Mode OFF: Controller Mode



* The area in white indicates the switch position.

* All switches are factory-set to "OFF".

3 LED Indicator

Display	Color	Name
PWR	Green	Power ON Indicator
RDY/ALM	Green/Red	Status Indicator

4 Electromagnetic Brake Forced-Release Switch

Display	Function
MB	Switch electromagnetic brake operation modes ON : Actuation OFF: Release

Note: This switch becomes effective only when a protective function is actuated.

5 Teaching Pendant Mode ON/OFF Switch

Display	Function
PENDANT	Set whether or not the teaching pendant is used ON: Teaching pendant used OFF: Teaching pendant not used

6 I/O Signals

●Controller Mode

Display	I/O	Terminal Number	Terminal Name	Function
I/O	Input Signal	23	+COM	Output signal power +24 V
		25		
		27	COM	Input signal power +24 V
		28		
		24	-COM	Output signal power GND
		26		
	Output Signal	1	READY	Turns ON when the START input can be received.
		2	ALM	Turns ON when the EMG input is OFF or upon the occurrence of a controller alarm.
		4	END	Turns ON when the operation has ended.
		5	MOVE	Turns ON during operation
		9	AREA	Turns ON when positioning is performed inside the set area or while the set area is being passed.
		10	T-UP	Turns ON during push-motion operation (cylinder only).
		31	ALM0	Alarm information is output in a five-bit code.
		32	ALM1	
		33	ALM2	
		34	ALM3	
		35	ALM4	
	Input Signal	36	ACL	Clear an alarm.
		11	M0	M0 through M5 input signals are combined to select a positioning point. (If all signals are OFF, the sequential positioning mode will be selected.)
		12	M1	
		13	M2	
		14	M3	
		15	M4	
		16	M5	
		3	STOP	Stop the operation.
		6	START	Start the positioning operation.
		7	PAUSE	Stop the operation temporarily.
		8	HOME	Perform return-to-home operation.

●Driver Mode

Display	I/O	Terminal Number	Terminal Name	Function
I/O	Input Signal	23	+COM	Output signal power +24 V
		25		
		27	COM	Input signal power +24 V
		28		
		24	-COM	Output signal power GND
		26		
	Output Signal	2	ALM	Turns ON when the EMG input is OFF or upon the occurrence of a controller alarm.
		4	END	Turns ON when the operation has ended.
		31	ALM0	Alarm information is output in a five-bit code.
		32	ALM1	
		33	ALM2	
		34	ALM3	
		35	ALM4	
		21	TIM+	Indicate that the motor is at the initial point of excitation (step [0]). This signal is output once each time the excitation sequence returns to step [0], in synchronism the input pulse. (The circuit is configured so that the excitation sequence completes one cycle when the linear slide table or cylinder rod has moved by 0.24 mm.)
		22	TIM-	
	Input Signal	36	ACL	Clear an alarm.
		11	RUN0	RUN0 through RUN2 input signals are combined to set the motor operating current.
		12	RUN1	
		13	RUN2	
		14	STOP0	STOP0 through STOP2 input signals are combined to set the motor standstill current.
		15	STOP1	
		16	STOP2	
		17	CW+	Move the linear slide table or cylinder rod away from the motor.
		18	CW-	
		19	CCW+	Move the linear slide table or cylinder rod toward the motor.
		20	CCW-	
		7	C.OFF	When this signal is ON, the current flow to the motor cut off and the holding-brake force generated by the motor torque is lost. Switching this signal from ON to OFF does not change the motor's excitation sequence.

Controller

EZHS, EZHC and EZHP Series

■ Specifications

●Controller Mode

Item		Specification
Type		Stored-data type
Number of Control Axes		1 axis
Maximum Speed		**EZHS** Series：800.00mm/s **EZHC** Series：600.00mm/s **EZHP** Series：300.00mm/s
Number of Motion Profiles		63
Positioning Mode		Absolute mode (absolute-position specification) Incremental mode (Relative-position specification)
Motion Profile Setting Method		Data is set using the teaching pendant (EZT1).
Data Execution Modes		Selective execution / Sequential execution
Travel Amount Setting Range		Absolute mode: -83886.08 to +83886.07 mm (value set in units of 0.01 mm) Incremental mode: -83886.08 to +83886.07 mm(value set in units of 0.01 mm)
Starting Speed		0.01 to 250.00 mm/s (value set in units of 0.01 mm/s) *Data can be set using the teaching pendant.
Operating Speed		0.01 to 800.00 mm/s (value set in units of 0.01 mm/s) *Data can be set using the teaching pendant.
Acceleration/Deceleration		0.01 to 100.00 m/s² (value set in units of 0.01 m/s²) *Data can be set using the teaching pendant.
Control Mode		External input mode (EXT) Program mode (PRG) Parameter mode (PAR) Test mode (TST)
Operation Mode		Positioning operation Return-to-home operation Linked operation (a maximum of 4 data) Push-motion operation Continuous operation
Input Signal		24 VDC photocoupler isolated input, input resistance 4.7 k Ω (START, STOP, HOME/PRESET, FREE, M0～M5, REQ, ACL/CK) 5 VDC photocoupler isolated input, input resistance 180 Ω or 24 VDC photocoupler isolated input, input resistance 2.7 k Ω (FWD,RVS)
Output Signal		Photocoupler-connected transistor output 24 VDC, 15 mA or less Line driver output
Power Supply Input	Control Power	24 VDC ±10%, 1.0 A (Controller only: 0.5 A) *Take into account safty margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.
	Main Power	EZMC13I(A)-A：AC100 -115V -15%, +10% 50/60Hz 3.3A EZMC24I(A)-A：AC100 -115V -15%, +10% 50/60Hz 5.0A EZMC12I(A)-C：AC200 -230V -15%, +10% 50/60Hz 3.0A
Program Backup		EEPROM

●Driver Mode

Item		Specification
Maximum Response Frequency		80 kHz (Pulse Duty 50%)
Pulse-Input Mode		Switchable between 1-pulse input mode and 2-pulse input mode (switching via DIP switches on front panel) Following mode pulse input (Switched from the teaching pendant)
Input Signal		5 VDC photocoupler isolated input, input resistance 180 Ω or 24 VDC photocoupler isolated input, input resistance 2.7 k Ω, negative logic pulse input(FP, RP) 24 VDC photocoupler isolated input, input resistance 4.7 k Ω (ACL/CK, FREE, C.OFF, PRESET, REQ)
●FP Pulse Signal		Pulse width 2 μs or more, rise/fall time 2 μs or less (The operation command pulse is input in the 1-pulse input mode.)
●RP Pulse Signal		Pulse width 2 μs or more, rise/fall time 2 μs or less (The direction of movement is input in the 1-pulse input mode.)
Output Signal		Photocoupler-connected transistor output 24 VDC, 15 mA or less Line driver output
Power Supply Input	Control Power	24 VDC ±10%, 1.0 A (Controller only: 0.5 A) *Take into account safty margin of +0.2 A for the teaching pendant, and/or +0.3 A for the electromagnetic brake type.
	Main Power	EZMC13I(A)-A：AC100 -115V -15%, +10% 50/60Hz 3.3A EZMC24I(A)-A：AC100 -115V -15%, +10% 50/60Hz 5.0A EZMC12I(A)-C：AC200 -230V -15%, +10% 50/60Hz 3.0A

●General Specifications

Item	Specification
Insulation Resistance	100 MΩ minimum when measured by a 500 V DC megger between the following terminals; ●Signal I/O, Control Power supply, PE - Main Power Supply ●Signal I/O, Control Power supply, PE - Motor output ●Signal I/O, Control Power supply, PE - Battery input
Dielectric Strength	Sufficient to withstand the following terminals for one minute; ●Signal I/O, Control Power supply - Main Power Supply 1.8kV ●Signal I/O, Control Power supply - Motor output 1.8kV ●Signal I/O, Control Power supply - Battery input 1.8kV ●PE - Main Power Supply 1.5kV ●PE - Motor output 1.5kV ●PE - Battery input 1.5kV
Ambient Temperature	0 °C to +40 °C (nonfreezing)
Ambient Humidity	85% or below (noncondensing)

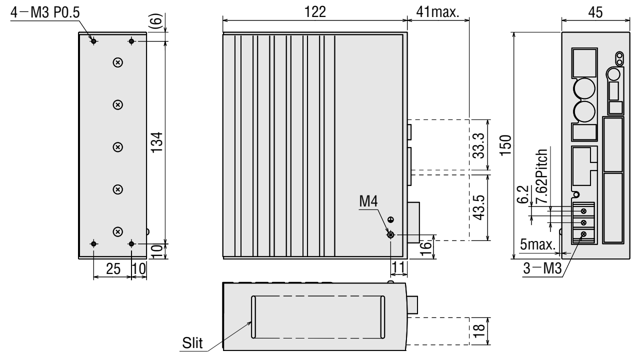
■ Battery Specifications (for the absolute type only)

Item	Specification
Battery Type	Cylindrical sealed nickel-cadmium storage cell
Nominal Voltage	2.4 V
Rated Capacity	2000 mAh
Mass	180 g
Life	Approx. 4 years *1
Charge Time	48 hours *1
Data Retention Period	Approx. 360 hours (15days) *1 *2
Ambient Temperature	0 °C to +40 °C (nonfreezing)
Ambient Humidity	20 to 85% (noncondensing)

*1 At an ambient temperature of 20°C
*2 After the power is cut off with the battery fully charged.

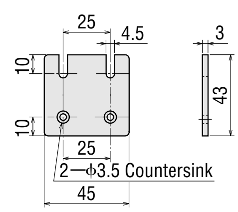
■ Dimensions unit: mm

Mass: 0.8kg



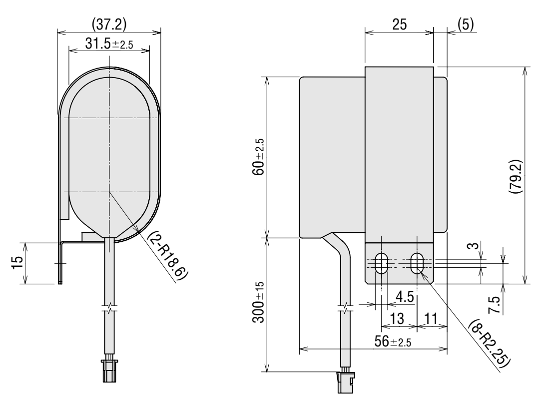
●Accessories (common to incremental and absolute type)

Mounting Bracket (2 pieces)

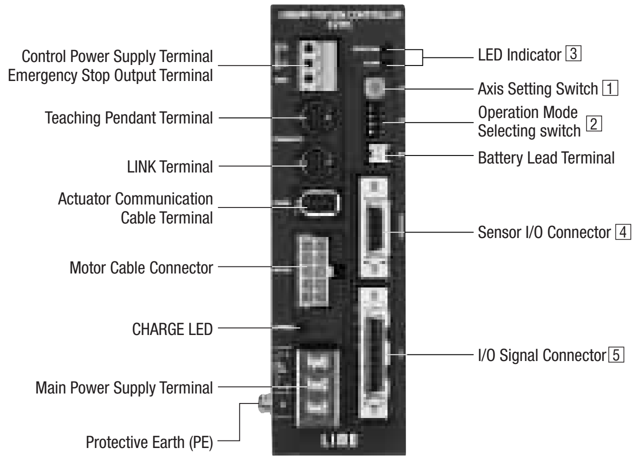


I/O Connector case (1 piece)	54331-1361 (MOLEX)
I/O Connector (1 piece)	54306-3619 (MOLEX)
I/O Connector case for Sensor (1 piece)	54331-1201 (MOLEX)
I/O Connector for Sensor (1 piece)	54306-2019 (MOLEX)

Battery (Supplied with absolute type models. Battery holder provided.)



Names and Functions of Parts

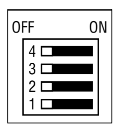


1 Axis-Number Setting Switch

Display	Function
ID	Set controller axis number

2 Operation-Mode Select Switch

Display	Function
4	Invalid (not used)
3	
2	Set Pulse Input Mode (in driver mode) ON: 1-Pulse Input Mode OFF: 2-Pulse Input Mode
1	Operation Modes ON: Driver Mode OFF: Controller Mode



* The area in white indicates the switch position.

* All switches are factory-set to "OFF".

3 LED Indicator

Display	Color	Name
OPERATION	Green	Control power supply indicator
ALARM	Red	Alarm indicator

4 Sensor I/O Connector

Display	I/O	Terminal Number	Terminal Name	Function
SENSOR	Output	1	P24	Power supply for sensor +24V
		11		
		19		
		2	N24	Power supply for sensor GND
		12		
		20		
	Input	13	+LS	+LS (counter-motor side) limit sensor
		14	-LS	-LS (Motor side) limit sensor
		15	HOMELS	Home position sensor

5 I/O Connector

●Controller Mode

Display	I/O	Terminal Number	Terminal Name	Function
I/O	Input Signal	18	P24	Power supply for I/O signal +24 V
		1	N24	Power supply for I/O signal GND
		19		
	Output Signal	2	ALM	Turns ON when the controller has generated an alarm.
		3	MOVE	Turns ON during operation.
		4	END/OUTR	END: Turns ON when the operation has ended. OUTR: Turns ON when current position output is ready.
		5	AREA/OUT0	AREA: Turns ON when the work has moved to a position inside the specified range or while passing the specified range. OUT0: Outputs the current position.
		6	T-UP/OUT1	T-UP: Turns ON during push-motion operation. (cylinder only) OUT1: Outputs the current position.
		20	ASG1(oc)	Outputs the position of the linear slide table or cylinder rod via pulse signal.(Open-collector output)
		21	BSG1(oc)	
		22	ASG2(dif)	Outputs the position of the linear slide table or cylinder rod via pulse signal.(Line-driver output)
		23	ASG2(dif)	
		24	BSG2(dif)	
		25	BSG2(dif)	
	Input Signal	7	START	Start positioning operation.
		8	ACL/CK	ACL: Clear the alarm currently present. CK: Used when the current position is output.
		9	FREE	Stop motor excitation and release the electromagnetic brake.
		10	STOP	Stop the operation.
		11	M0	Positioning point is selected via combination of M0 to M5 input signals. (When all signals are OFF, sequential positioning is performed.)
		12	M1	
		13	M2	
		14	M3	
		15	M4	
		16	M5	
		17	HOME/ PRESET*	HOME: Perform return-to-home operation. PRESET: Preset the current position.
		30	REQ	Request current position output.
		31	FWD+	Move the linear slide table or cylinder rod to the away from the motor. (Continuous operation input)
		32	FWD-	
		33	P24-FWD	
		34	RVS+	Move the linear slide table or cylinder rod toward the motor. (Continuous operation input)
		35	RVS-	
		36	P24-RVS	

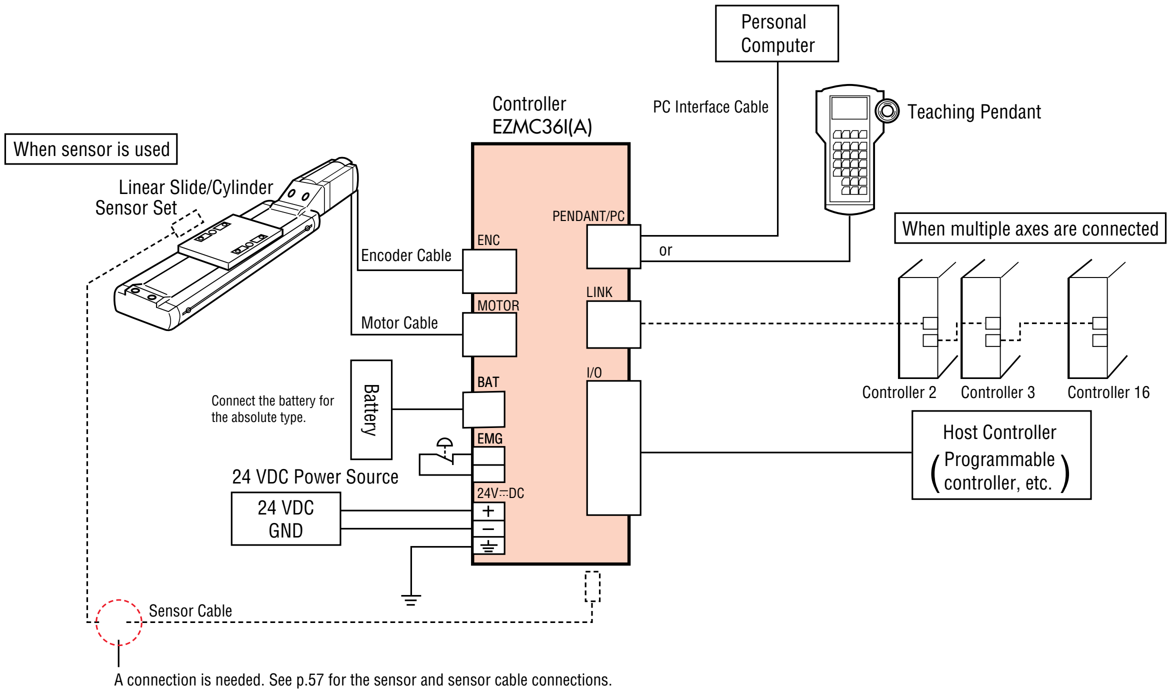
* Either HOME or PRESET is available.

●Driver Mode

Display	I/O	Terminal Number	Terminal Name	Function
I/O	Input Signal	18	P24	Power supply for I/O signal +24 V
		1	N24	Power supply for I/O signal GND
		19		
	Output Signal	2	ALM	Turns ON when the controller has generated an alarm.
		4	END/OUTR	END: Turns ON when the operation has ended. OUTR: Turns ON when current position output is ready.
		5	TIM/OUT0	TIM: The signal is output every time the excitation sequence returns to the initial stage "0". This signal is output in sync with the input pulse: the signal is output once whenever the excitation sequence returns to step 0. (The excitation sequence completes when the linear slide table or cylinder rod has moved by 0.24 mm*.) * **EZHP4/EZHP6**: 0.12 mm OUT0: Outputs the current position.
		6	OUT1	Outputs the current position
		20	ASG1(oc)	Outputs the position of the linear slide table or cylinder rod via pulse signal.(Open-collector output)
		21	BSG1(oc)	
		22	ASG2(dif)	Outputs the position of the linear slide table or cylinder rod via pulse signal.(Line-driver output)
		23	ASG2(dif)	
		24	BSG2(dif)	
		25	BSG2(dif)	
	Input Signal	8	ACL/CK	ACL: Clear the alarm currently present. CK: Used when the current position is output.
		9	FREE	Stop motor excitation and release the electromagnetic brake.
		10	C.OFF	When this signal turns ON, the current flow to the motor is cut off and the holding-brake force, which is generated by motor torque, will be lost. Turning this signal from ON to OFF does not change the motor's excitation sequence.
		17	PRESET	Preset the current position.
		30	REQ	Request current position output.
		31	FP+	Move the linear slide table or cylinder rod away from the motor. (Pulse input)
		32	FP-	
		33	P24-FP	
		34	RP+	Move the linear slide table or cylinder rod toward the motor.(Pulse input)
		35	RP-	
		36	P24-RP	

EZS Series • EZC Series

■ Connection Diagram



●**Power Source**

Use a 24 VDC power source with a capacity of 4.0 A or more.
If the power capacity is insufficient, motor output may drop, which may cause the linear slide/cylinder to malfunction (due to lack of thrust force).

●**Power Supply to +COM**

Use a power source with a capacity of 24 VDC, 100 mA or more.

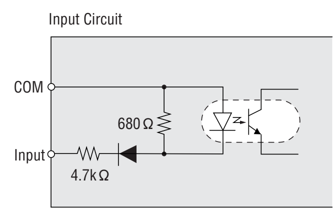
●**Connection of Output Signal**

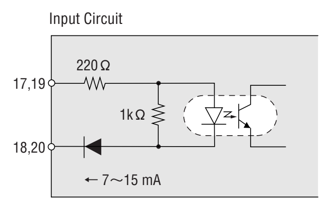
V_0 must be between 5 and 24 VDC.
The current must be 25 mA or less. If the current exceeds 25 mA, connect an external resistance R_0.

●**Notes on Wiring**

- Be sure to use an optional motor cable and encoder cable if the linear slide/cylinder will be placed 0.25 m or further away from the controller.
- Wire the control I/O signal lines over as short a distance as possible(max.2m), using a multiple-core, twisted-pair blanket shield cable [0.08 mm² (AWG 28) or more].
- Wire the control I/O signal lines by providing a minimum distance of 30 cm from the power lines (large-current circuits such as the power supply line and motor line). Do not wire the control I/O signal lines with the power lines in the same duct or bundle them together.

Input Circuit



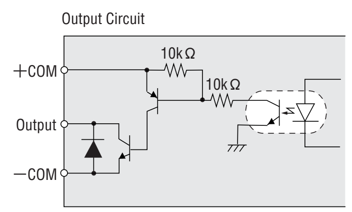


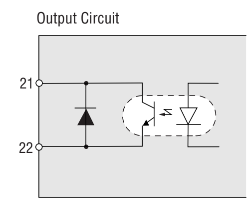
●Controller Mode
Pin No.
36 ACL
11 ~ 16 M0~M5
3 STOP
6 START
7 PAUSE
8 HOME

●Driver Mode
Pin No.
36 ACL
11 ~ 13 RUN0~RUN2
14 ~ 16 STOP0~STOP2
7 C.OFF

●Driver Mode
Pin No.
17 CW+
18 CW-
19 CCW+
20 CCW-

Output Circuit





●Controller Mode
Pin No.
1 READY
2 ALM
4 END
5 MOVE
9 AREA
10 T-UP
31 ~ 35 ALM0~ALM4

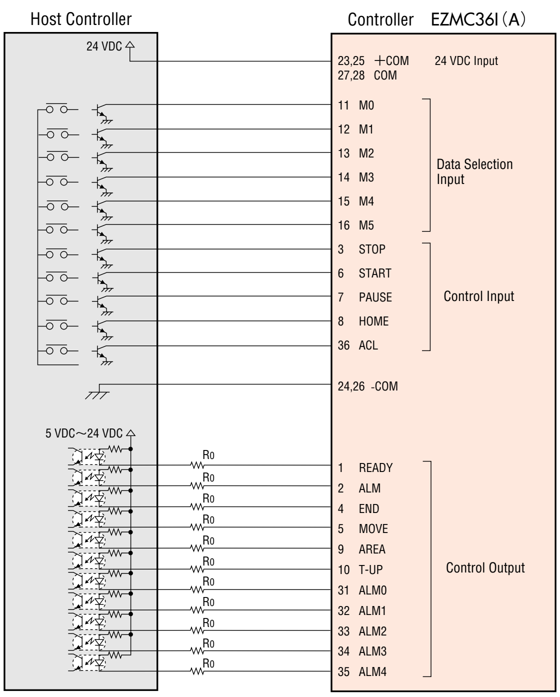
●Driver Mode
Pin No.
2 ALM
4 END
31 ~ 35 ALM0~ALM4

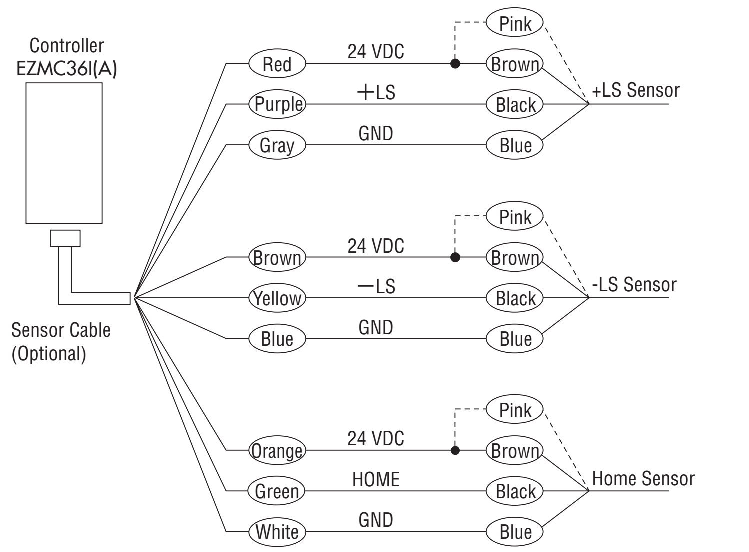
●Driver Mode
Pin No.
21 TIM+
22 TIM-

Connection to Host Computer

●Controller Mode

Wiring the Sensors



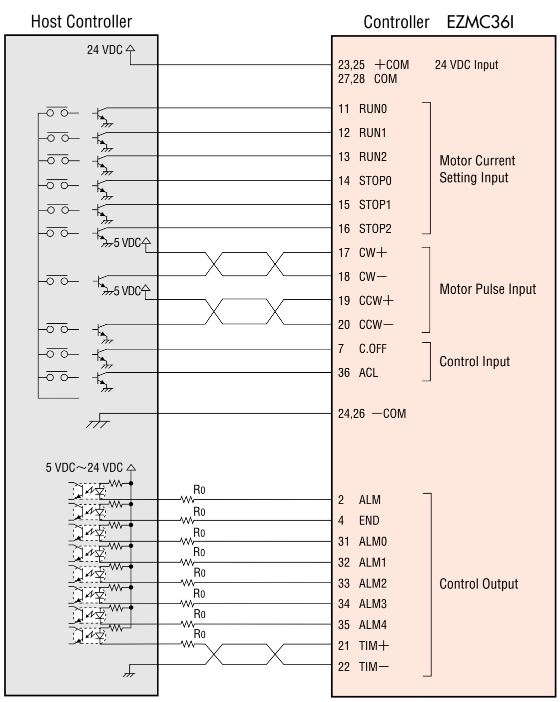


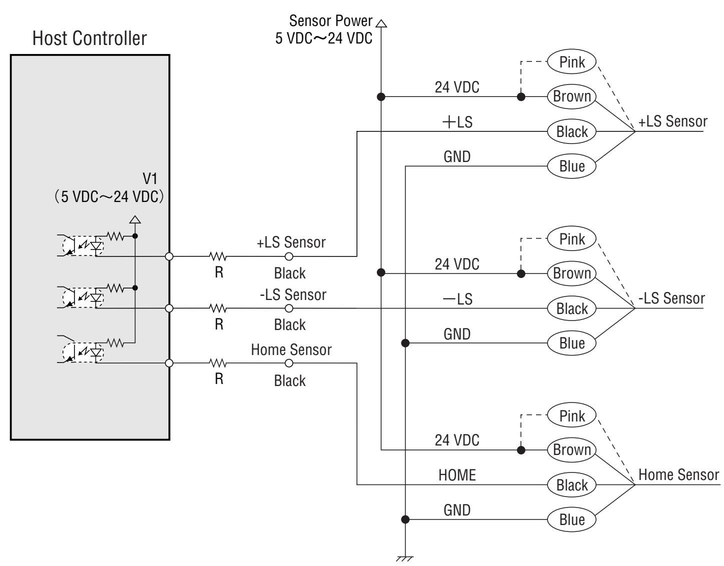
●The 24 VDC output from the controller is used to drive the sensors.
Do not use it as a power supply for any item other than the sensors.

●Connect the pink lead to the brown lead when the sensor logic is N.C. (normally closed).
The pink lead is not connected when the sensor logic is N.O. (normally open).

●Driver Mode

Wiring the Sensors



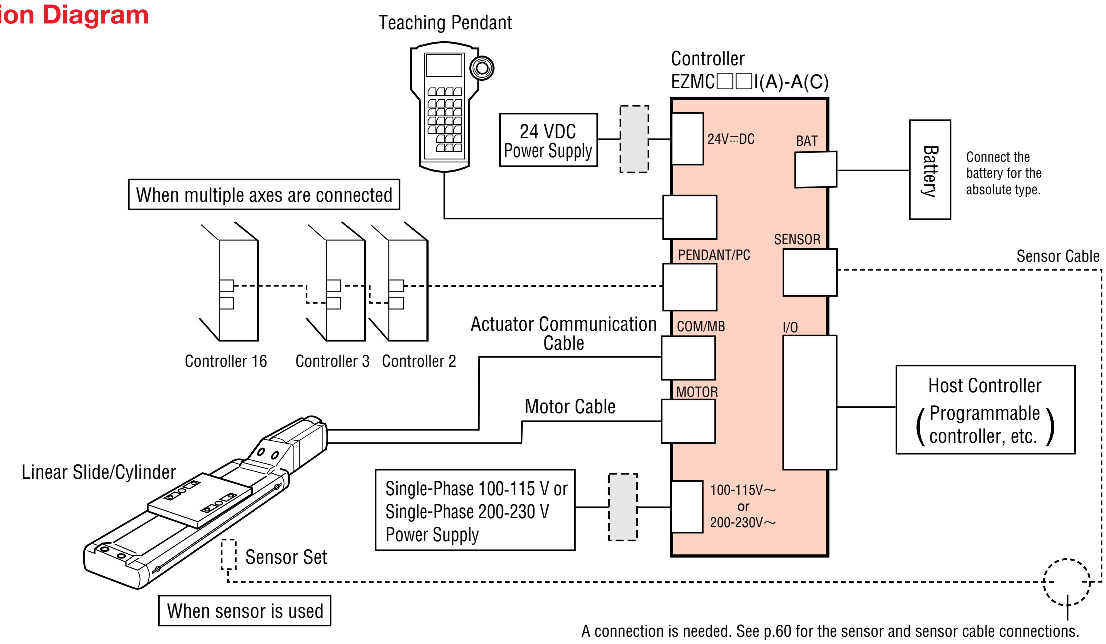


●V1 must be between 5 VDC and 24 VDC. The current must be 100 mA or less. If the current exceeds 100 mA, connect an external resistance R.

●Connect the pink lead to the brown lead when the sensor logic is N.C.(normally closed).
The pink lead is not connected when the sensor logic is N.O. (normally open).

EZHS Series • EZHC Series • EZHP Series

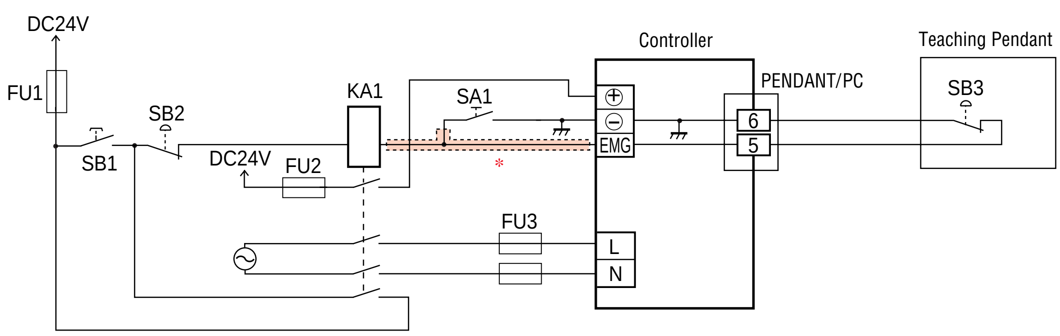
Connection Diagram



For the section indicated by broken line, see following "Connection Example of Power System and Emergency Stop System".

Connection Example of Power System and Emergency Stop System

A connection example of controller power system and emergency stop system is given below, which conforms to Stop Category 0 under the EN 60204-1 safety standard. See page 15 for details on the applicable standard.



- FU1: Ground-fault protection fuse (500 mA)
- FU2: Ground-fault protection fuse (1 A)
- FU1, FU2, KA1 and SB2 should use EN-certified products.
- Relay (KA1) ratings: 24 VDC/30 mA

- See "**EZHS/EZHC/EZHP** Series Controller User Manual" for examples of connecting multiple controllers using controller link cables.

* Provide ground-fault protection in the section indicated by broken line, such as wiring the cables in duct.

●Power Source

Two types of power source, main power and control power, are required. Both power sources must at least have the specified capacity. (See the controller specifications listed on page 54.)

If the power capacity is insufficient, the linear slide/cylinder may not operate normally (due to lack of thrust force) as a result of a drop in motor output.

●Notes on Wiring

- Wire the control I/O signal lines over as short a distance as possible(max.2m), using a multiple-core, twisted-pair blanket shield cable [0.08 mm² (AWG 28) or more].
- Be sure to use an optional motor cable and actuator communication cable if the linear slide/cylinder will be placed 0.25 m or further away from the controller.
- Wire the control I/O signal lines by providing a minimum distance of 30 cm from the power lines (large-current circuits such as the power supply line and motor line). Do not wire the control I/O signal lines with the power lines in the same duct or bundle them together.

●Input Circuit 1 Connection

The power source for P24 must have a capacity of 24 VDC/200 mA or more.

When connecting each sensor to a sensor connector and supplying sensor power from the P24 terminal of the sensor connector, use a DC power source capable of supplying 200 mA as specified above plus the current consumed by each sensor. (When the optional sensor set **PAEZ-S** is used, the current capacity must be increased by 35 mA per sensor.)

The 24 VDC supplied to the P24 terminal of the I/O connector is output to the P24 terminal of the sensor connector as pass-through output.

●Input Circuit 2 Connection

The photocoupler diode in the input circuit can receive 7 to 20 mA of current.

- When a 24 VDC power source is used, connect 24 VDC to ㉝ and ㊱ and then connect to ㉜ and ㉟, respectively.
- When a 5 VDC power source is used, connect 5 VDC to ㉛ and ㉞ and then connect to ㉜ and ㉟, respectively.
  If the power source exceeds 5 VDC, connect an external resistor R_2 to keep the input current between 7 to 20 mA.
- If a pulse oscillator of line-driver output is used, connect the + side of line-driver output to ㉛ and ㉞, and the − side of line-driver output to ㉜ and ㉟, respectively. (See the connection diagram on page 61.)

●Output Circuit 1 Connection

The load connected to the open-collector output terminal of output circuit 1 should be 30VDC, 10 mA or less. If the current capacity of the load exceeds 10 mA, connect an external resistor R_0.*

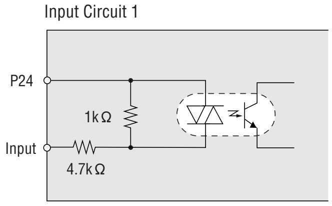
●Output Circuit 2 Connection

The load connected to the open-collector output terminal of output circuit 2 should be 30VDC/15 mA or less. If the current capacity of the load exceeds 15 mA, connect an external resistor R_1.*

* See page 60 and page 61 for the connection positions of external resistors.

Input Circuit

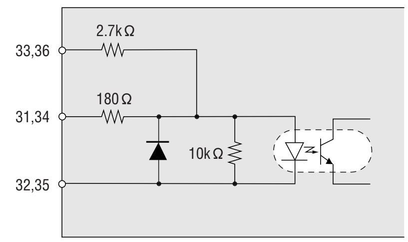
Input Circuit 1



● Controller Mode
Pin No.
❼ START
❽ ACL/CK
❾ FREE
❿ STOP
⓫～⓰ M0～M5
⓱ HOME/PRESET
㉚ REQ

● Driver Mode
Pin No.
❽ ACL/CK
❾ FREE
❿ C.OFF
⓱ PRESET
㉚ REQ

Input Circuit 2

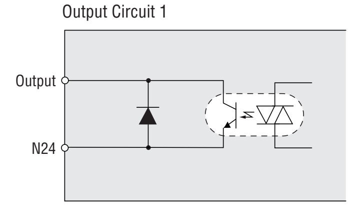


● Controller Mode
Pin No.
㉛ FWD+
㉜ FWD−
㉝ P24-FWD
㉞ RVS+
㉟ RVS−
㊱ P24-RVS

● Driver Mode
Pin No.
㉛ FP+
㉜ FP−
㉝ P24-FP
㉞ RP+
㉟ RP−
㊱ P24-RP

Output Circuit

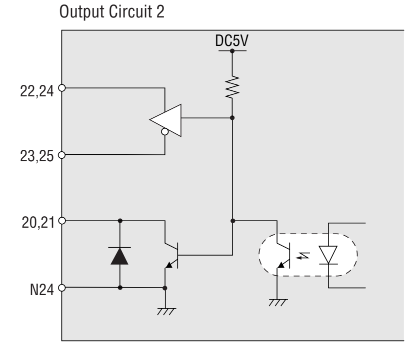
Output Circuit 1



● Controller Mode
Pin No.
❷ ALARM
❸ MOVE
❹ END/OUTR
❺ AREA/OUT0
❻ T-UP/OUT1

● Driver Mode
Pin No.
❷ ALARM
❹ END/OUTR
❺ TIM/OUT0
❻ OUT1

Output Circuit 2



● Common to Controller Model and Driver Mode
Pin No.
⑳ ASG1 A-Phase Pulse Output (Open-Collector Output)
㉑ BSG1 B-Phase Pulse Output (Open-Collector Output)
㉒ ASG2+ A-Phase Pulse Output (Line Driver Output +)
㉓ ASG2− A-Phase Pulse Output (Line Driver Output −)
㉔ BSG2+ B-Phase Pulse Output (Line Driver Output +)
㉕ BSG2− B-Phase Pulse Output (Line Driver Output −)

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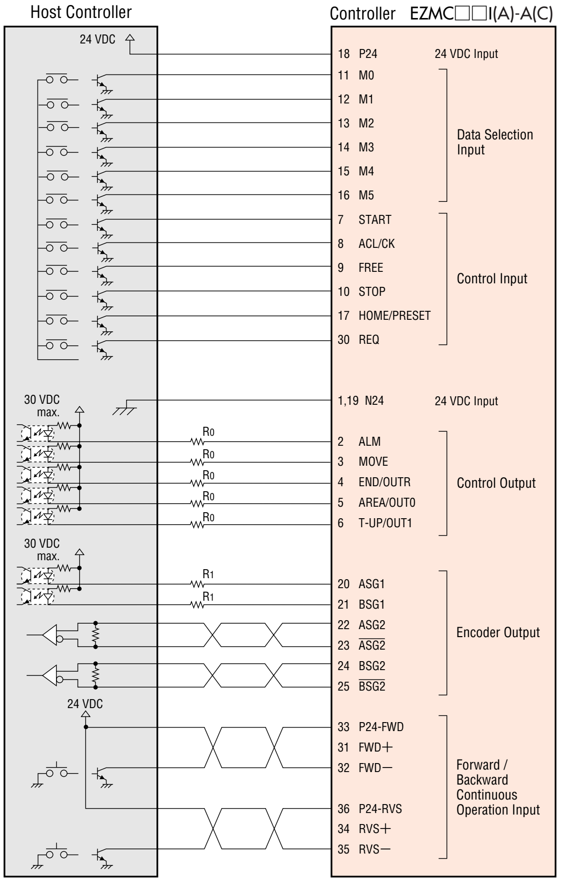
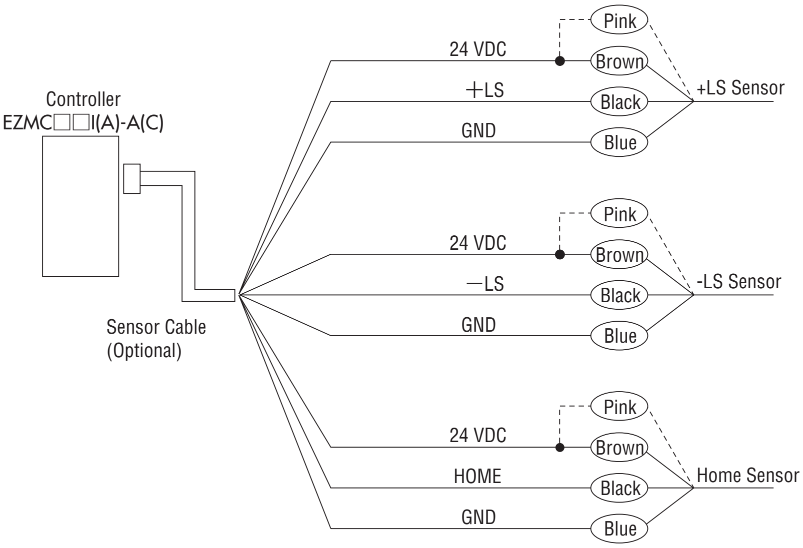
Connection to Host Computer

●Controller Mode



∗See page 59 for the conditions of external resistors R_0 and R_1.

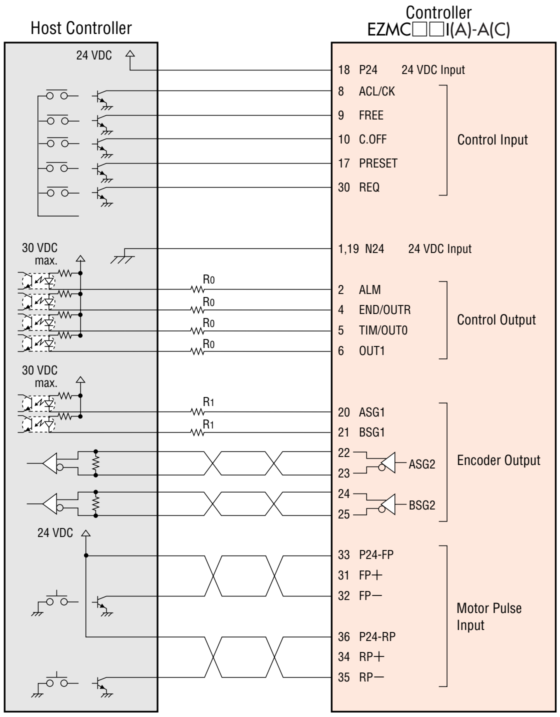
Wiring the Sensors



●The 24 VDC output from the controller is used to drive the sensors.
Do not use it as a power supply for any item other than the sensors.

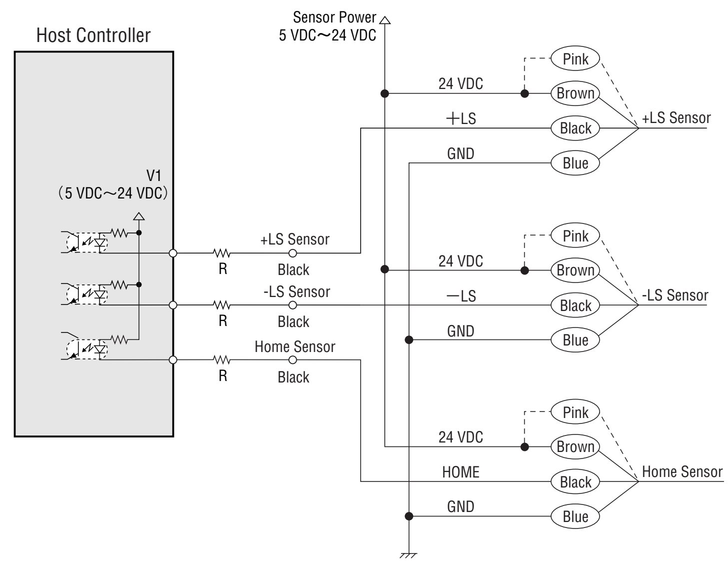
●Connect the pink lead to the brown lead when the sensor logic is N.C. (normally closed).
The pink lead is not connected when the sensor logic is N.O. (normally open).

●Driver Mode



✻See page 59 for the conditions of external resistors R_0 and R_1.

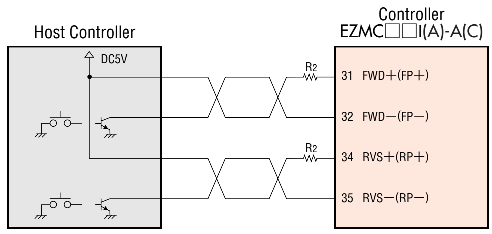
Wiring the Sensors



●V1 must be between 5 VDC and 24 VDC. The current must be 100 mA or less. If the current exceeds 100 mA, connect an external resistance R.
●Connect the pink lead to the brown lead when the sensor logic is N.C.(normally closed). The pink lead is not connected when the sensor logic is N.O. (normally open).

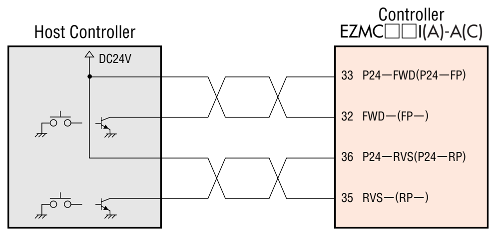
■ FWD (FP), RVS (RP) Signals

When connected to a 5 VDC open-collector output signal



●When the output signal is 5 VDC, the external resistor R_2 is not required. If the output signal exceed 5 VDC, see page 59.

When connected to a 24 VDC open-collector output signal



When connected to a line-driver output