ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

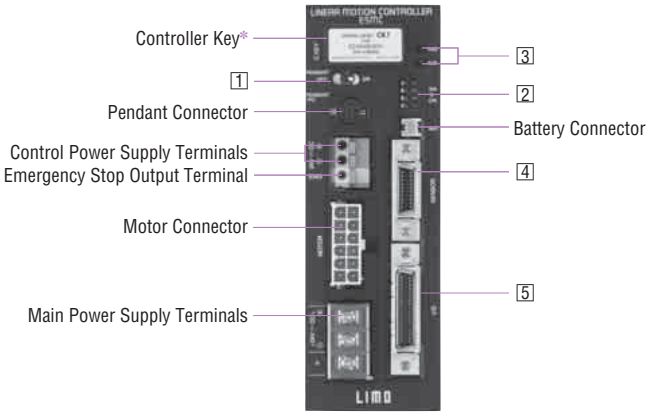
All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Oriental Motor ESMC-K2* at our website: *Click HERE*

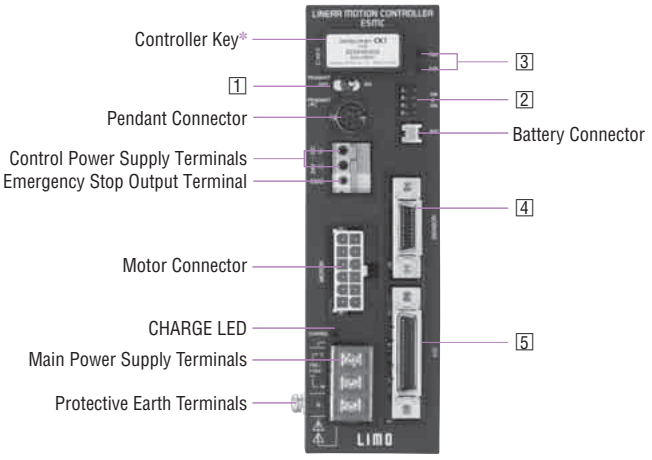
Connection and Operation

Names and Functions of Linear Motion Controller Parts

ESMC-K2



ESMC-A2, ESMC-C2



1 Teaching Pendant Switch

Indication	Function
PENDANT	Enable/disable the teaching pendant ON: Enable the teaching pendant OFF: Disable the teaching pendant (The emergency stop button on the teaching pendant is also disabled.)

2 Mode Switches

Indication	Function
4	Not used
3	Switch ABS/INC ON: Absolute mode OFF: Incremental mode
2	Set pulse input mode (in driver mode) ON: 1-pulse input mode OFF: 2-pulse input mode
1	Switch modes ON: Driver mode OFF: Controller mode

● All switches are set to OFF at the time of shipment.

3 LED Indicators

Indication	Color	Function
PWR	Green	Control power supply indication
ALM	Red	Alarm indication

4 Sensor I/O Connector

Indication	Input/Output	Pin No.	Signal Name	Function
SENSOR	Input	1	IN-COM2	Power supply for sensor
		11		
		19		
		13	+LS	+ coordinate limit sensor
		14	−LS	− coordinate limit sensor
		15	HOMELS	Mechanical home sensor

✻ Make sure the linear slide model name on the controller key matches the model name of the connected linear slide. If the names do not match, the linear slide cannot be operated as specified.

Features D-16 / General Specifications of Motor D-17 / System Configuration D-22

5 I/O Connector

◇Controller Mode

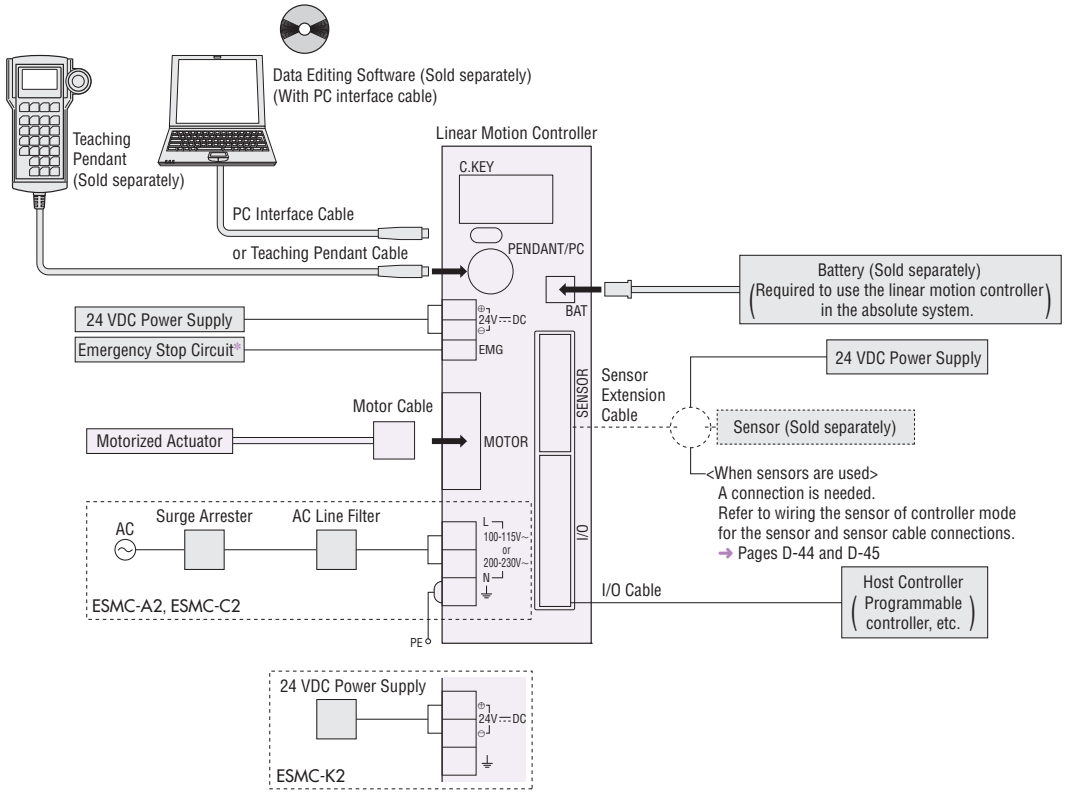
Indication	Input/Output	Pin No.	Signal Name	Function
I/O	Input	18	IN-COM1※1※2	Power supply for input signals
		19	GND	Power supply for I/O signals
		1	OUT-COM※3	Power supply for output signals
	Output	2	ALM	This signal is output when a protective function has been activated.
		3	MOVE	This signal is output while the linear slide is operating.
		4	END/ OUTR	END: This signal is output when a positioning operation or return to home operation has been completed. OUTR: Output the current position
		5	AREA/OUT0	AREA: This output notifies that the table of the linear slide is staying inside a specified area. OUT0: Output the current position
		6	T-UP/ OUT1	T-UP: This signal is output when a push-motion operation has been completed. OUT1: Output the current position
		20	ASG1	A-phase pulse output (Open-collector)
		21	BSG1	B-phase pulse output (Open-collector)
		22	ASG2	A-phase pulse output (Line driver)
		23	$\overline{\text{ASG2}}$	
		24	BSG2	B-phase pulse output (Line driver)
		25	$\overline{\text{BSG2}}$	
	Input	7	START	Start the positioning operation
		8	ACL/CK	ACL: Cancel the protective function currently active CK: Output the current position
		9	FREE	Stop motor excitation and release the electromagnetic brake
		10	STOP	Stop a positioning operation, return to home operation and continuous operation
		11	M0	Select the positioning operation No.
		12	M1	
		13	M2	
		14	M3	
		15	M4	
		16	M5	
		17	HOME/ PRESET	HOME: Start return to home operation PRESET: Preset the current position
		30	REQ	Request the current position output
		31	FWD+	FWD: Move the linear slide table in the + coordinate direction
		32	FWD−	
		33	P24-FWD	
		34	RVS+	RVS: Move the linear slide table in the − coordinate direction
		35	RVS−	
		36	P24-RVS	

◇Driver Mode

Indication	Input/Output	Pin No.	Signal Name	Function
I/O	Input	18	IN-COM1※1※2	Power supply for input signals
		19	GND	Power supply for I/O signals
		1	OUT-COM※3	Power supply for output signals
	Output	2	ALM	This signal is output when a protective function has been activated.
		3	MOVE	This signal is output while the linear slide is operating.
		4	END/ OUTR	END: This signal is output when a positioning operation or return to home operation has been completed. OUTR: Output the current position
		5	TIM/ OUT0	TIM: This signal is output when the excitation sequence is at step "0." OUT0: Output the current position
		6	OUT1	Output the current position
		20	ASG1	A-phase pulse output (Open-collector)
		21	BSG1	B-phase pulse output (Open-collector)
		22	ASG2	A-phase pulse output (Line driver)
		23	$\overline{\text{ASG2}}$	
		24	BSG2	B-phase pulse output (Line driver)
		25	$\overline{\text{BSG2}}$	
	Input	8	ACL/CK	ACL: Cancel the protective function currently active CK: Output the current position
		9	FREE	Stop motor excitation and release the electromagnetic brake
		10	C.OFF	Stop motor excitation and hold the electromagnetic brake
		11	HMSTOP	Stop return to home operation
		17	HOME/ PRESET※4	HOME: Start return to home operation PRESET: Preset the current position
		30	REQ	Request the current position output
		31	FP+	Operation command pulse input (The operation command pulse input in the + coordinate direction in the 2-pulse input mode)
		32	FP−	
		33	P24-FP	
		34	RP+	Direction of movement input (The operation command pulse input in the − coordinate direction in the 2-pulse input mode)
		35	RP−	
		36	P24-RP	

※1 Connect this signal to 24 VDC if your controller is used in the NPN mode, or connect it to ground if the controller is used in the PNP mode.
※2 Connect this signal even when only output signals are used.
※3 Connect this signal to ground if your controller is used in the NPN mode, or connect it to 24 VDC if the controller is used in the PNP mode.
※4 Teaching pendant (**EZT1**) or data editing software (**EZED2**) is required when switching the HOME/PRESET input or changing parameters in the driver mode.

●Connection Diagram



*For the circuit configuration, refer to "Emergency stop circuit" below.

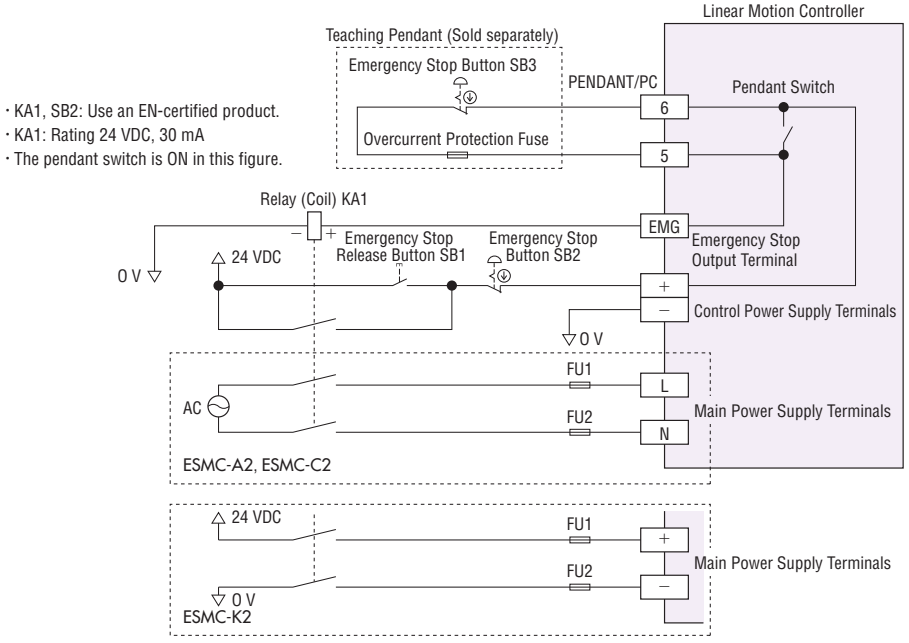
●Emergency Stop Circuit

If an emergency stop function is used, provide a circuit that will cut off the main power supply and control power supply upon pressing of the emergency stop button.

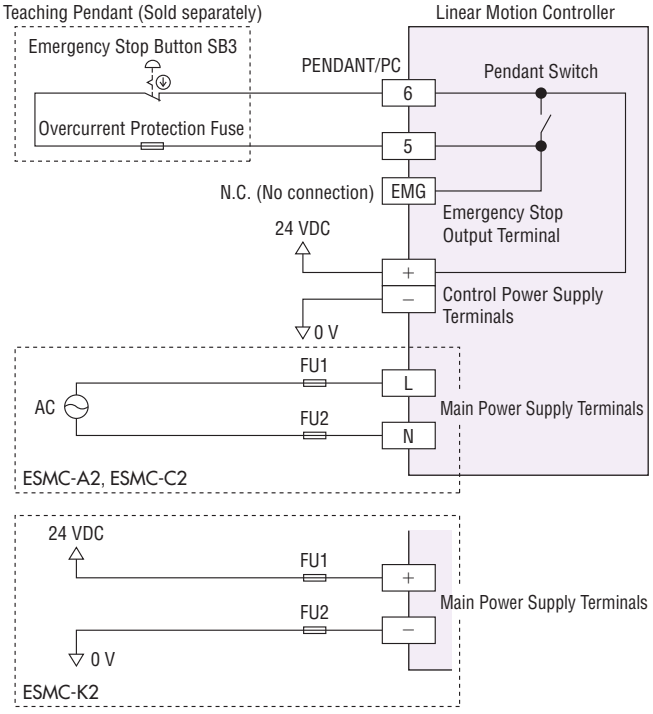
- When providing an emergency stop circuit, consider an appropriate circuit configuration based on the result of the risk assessment of the equipment you are manufacturing.
- If the risk assessment result indicates that no emergency stop function is necessary, the circuit configuration shown in "Connection example when an emergency stop function is not used" can be used.
- Do not connect the emergency stop output terminal directly to GND (0 V). Doing so will blow the overcurrent protection fuse in the teaching pendant, in which case the emergency stop can no longer be canceled.
- Provide a measure on the machine side so that the machine will operate safely when the motorized actuator is stopped.

◇Connection Example When an Emergency Stop Function is Used

A connection example of controller power system and emergency stop system is given below, which conforms to Category 1 under the EN 954-1 safety standard and Stop Category 0 under the EN 60204-1 safety standard.



◇Connection Example When an Emergency Stop Function is Not Used



Note:

- When the emergency stop button (SB3) on the teaching pendant is pressed, an emergency stop alarm (Err68) will generate and the motorized actuator will stop operating. This stopping method is based on software control. It does not meet the emergency stop requirements specified in safety standards.

◇Power Supply

- Two types of power supply, main power and control power are required. Both power supplies must at least have the specified capacity.
  Specifications of linear motion controller ➜ Page D-38
- If the power capacity is insufficient, motor output may drop, which may cause the linear slide to malfunction (due to lack of thrust force).

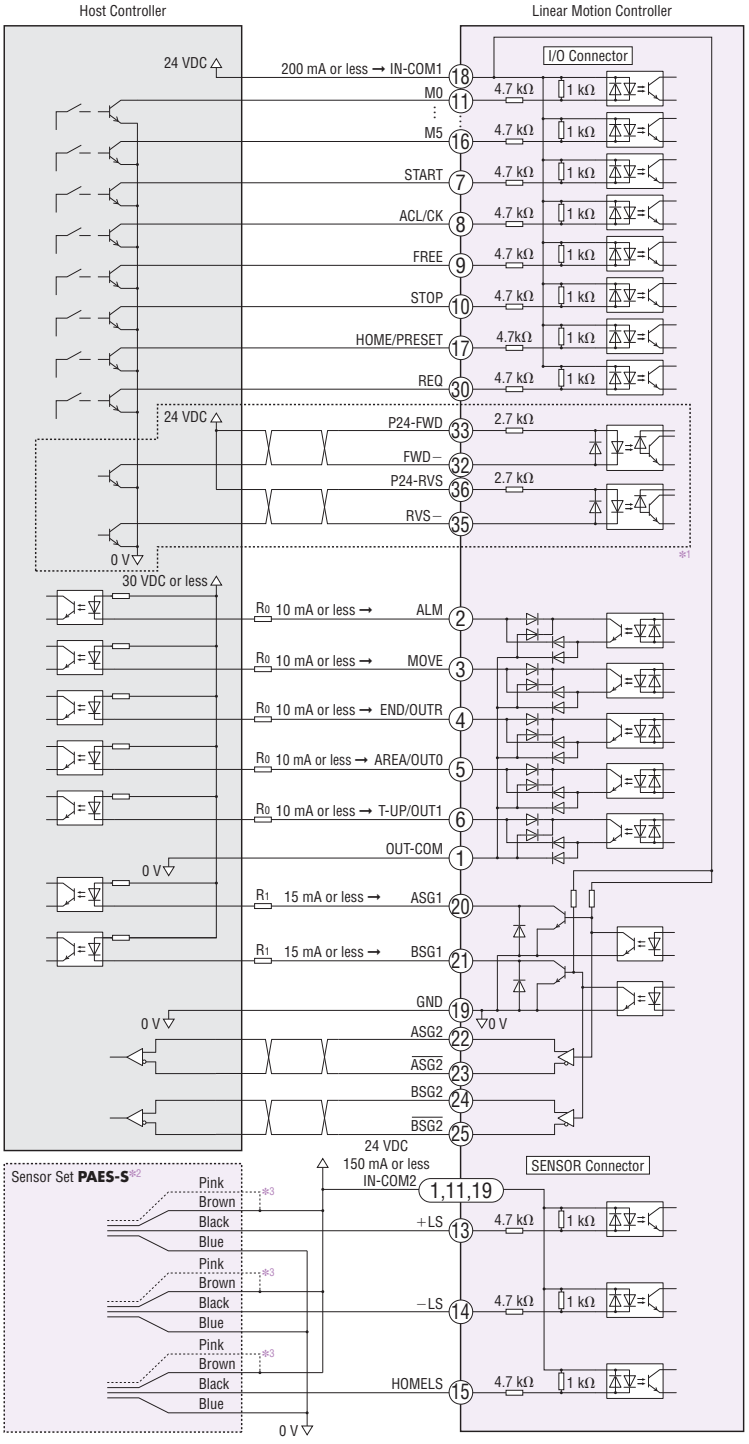
◇Notes on Wiring

- Wire the control I/O signal lines over as short a distance as possible, using a shielded cable (AWG28 or thicker).
- Be sure to use an accessory motor cable to wire the linear slide and linear motion 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.

●Connection to Host Controller

◇Controller Mode

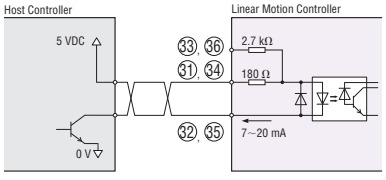
· Sink Logic (NPN) Specification



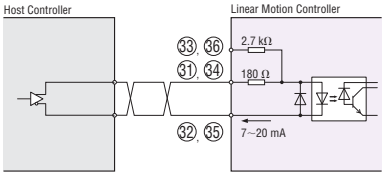
※1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
※2 An accessory sensor set is also available (sold separately).
※3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

When connecting to sink logic (NPN) specification of 5 VDC

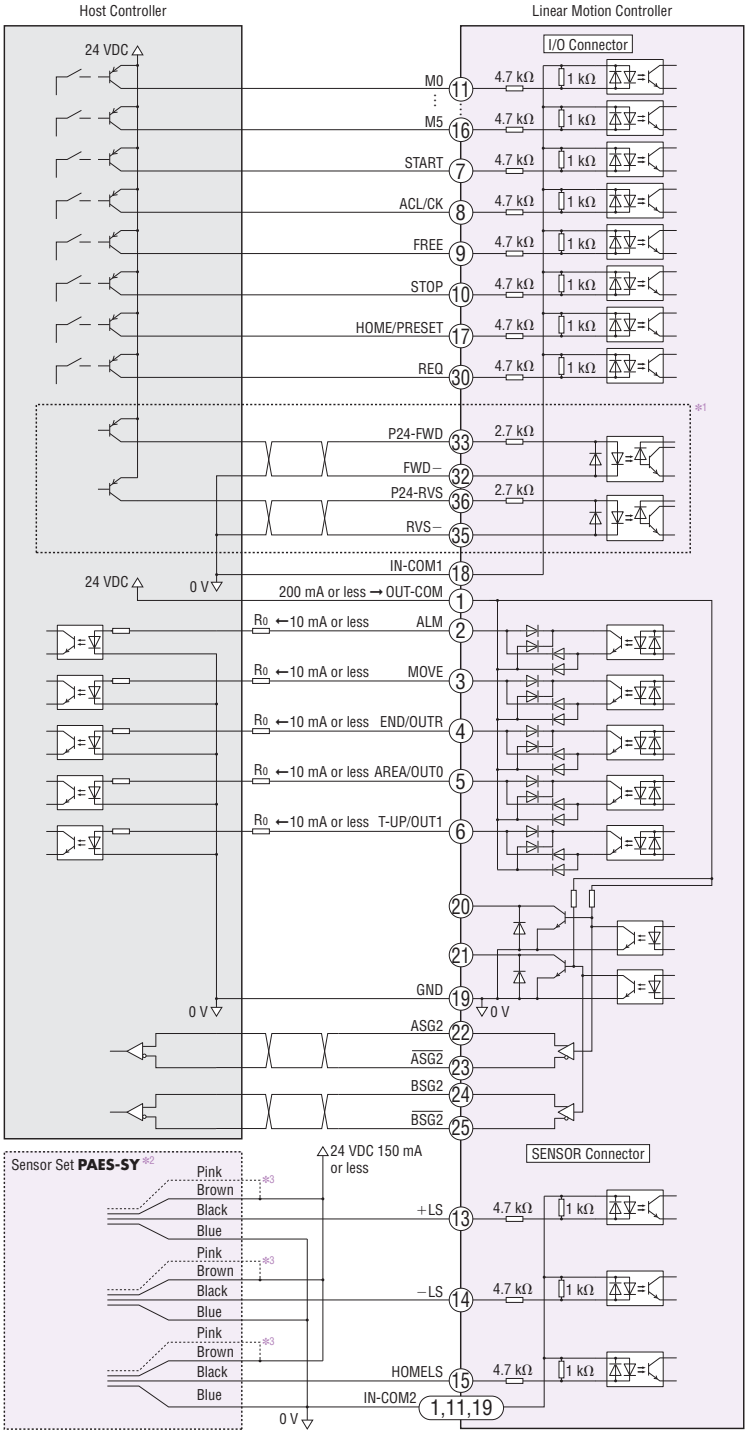


When connecting to a line driver output circuit



◇Controller Mode

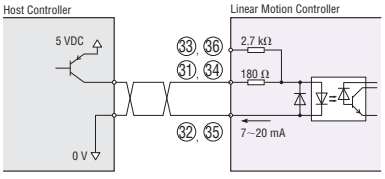
· Source Logic (PNP) Specification



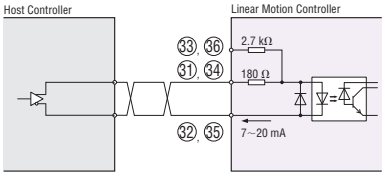
✻1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
✻2 An accessory sensor set is also available (sold separately).
✻3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

When connecting to source logic (PNP) specification of 5 VDC

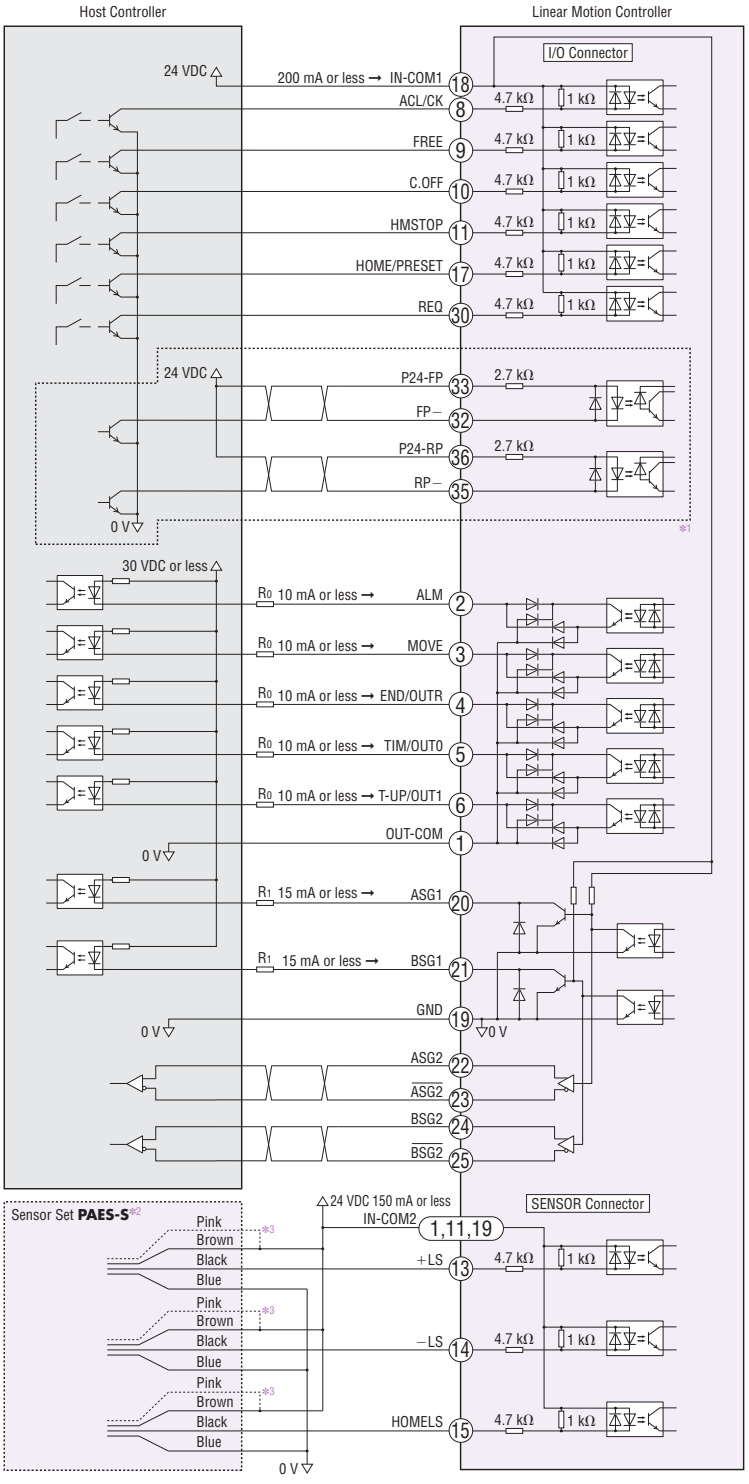


When connecting to a line driver output circuit



◇Driver Mode

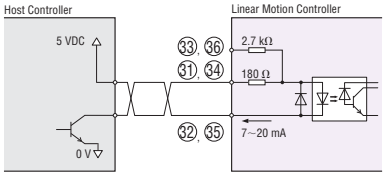
・Sink Logic (NPN) Specification



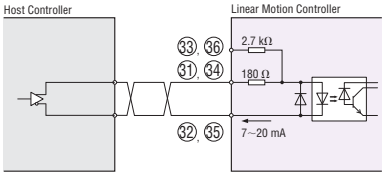
※1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
※2 An accessory sensor set is also available (sold separately).
※3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

When connecting to sink logic (NPN) specification of 5 VDC

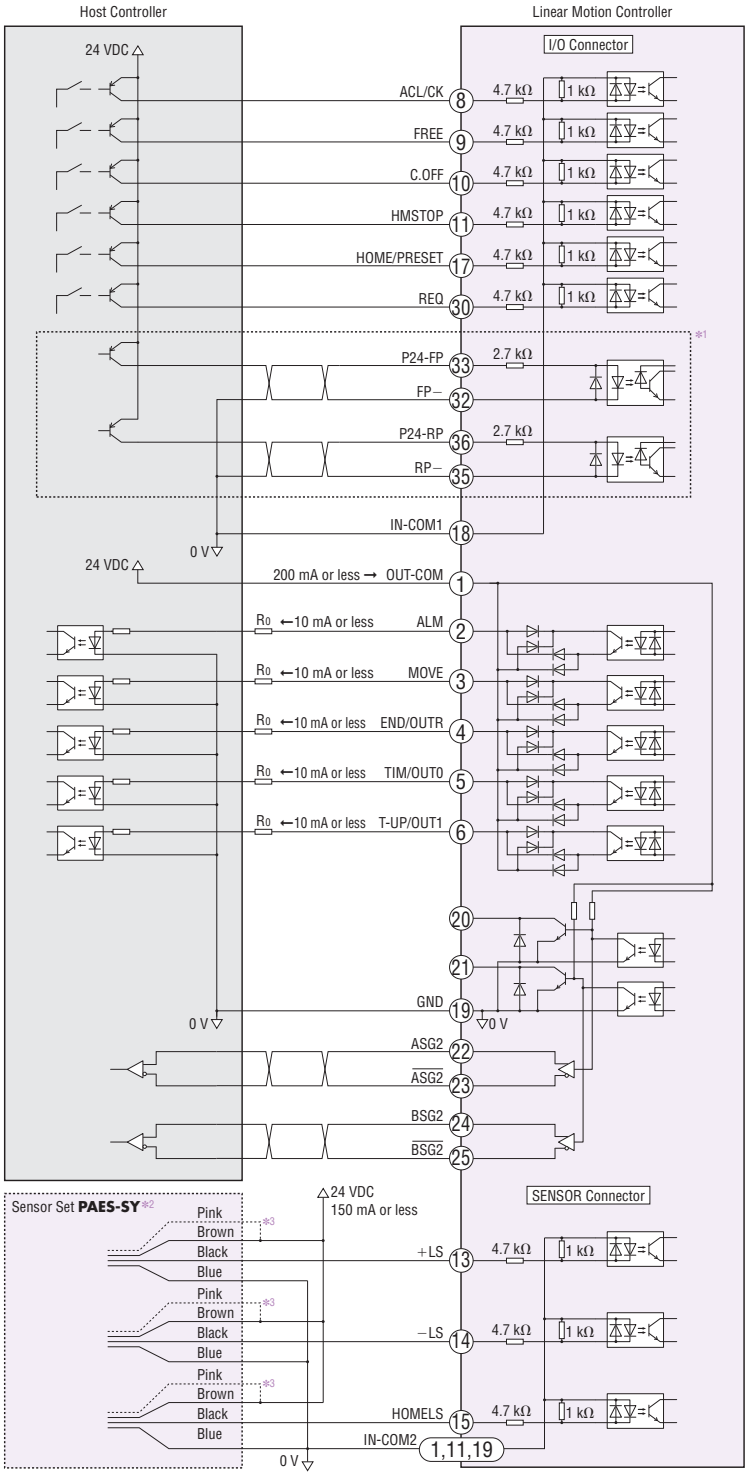


When connecting to a line driver output circuit



◇Driver Mode

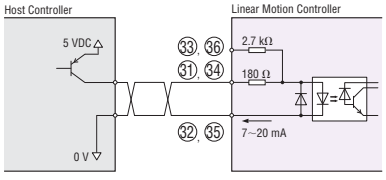
· Source Logic (PNP) Specification



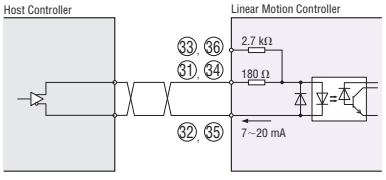
*1 For connection of 31 to 36 pins, refer to "FWD (FP) and RVS (RP) signals" shown below.
*2 An accessory sensor set is also available (sold separately).
*3 Connect this line if the normally closed (NC) logic is used.

◇FWD (FP) and RVS (RP) Signals

When connecting to source logic (PNP) specification of 5 VDC



When connecting to a line driver output circuit



Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP