

Autonics Programmable Motion Controller

PMC-2HSP/PMC-2HSN SERIES

INSTRUCTION MANUAL



Thank you for choosing our Autonics product.
Please read the following safety considerations before use.

Safety Considerations

※Please observe all safety considerations for safe and proper product operation to avoid hazards.
※⚠ symbol represents caution due to special circumstances in which hazards may occur.

- Warning** Failure to follow these instructions may result in serious injury or death.
- Caution** Failure to follow these instructions may result in personal injury or product damage.

Warning

- Fail-safe device must be installed when using the unit with machinery that may cause serious injury or substantial economic loss.** (e.g. nuclear power control, medical equipment, ships, vehicles, railways, aircraft, combustion apparatus, safety equipment, crime/disaster prevention devices, etc.)
Failure to follow this instruction may result in fire, personal injury, or economic loss.
- Install on a device panel or DIN rail to use.**
Failure to follow this instruction may result in fire.
- Do not connect, repair, or inspect the unit while connected to a power source.**
Failure to follow this instruction may result in fire.
- Check 'Connections' before wiring.**
Failure to follow this instruction may result in fire.
- Do not disassemble or modify the unit.**
Failure to follow this instruction may result in fire.
- Do not cut off power or disconnect connectors while operating the unit.**
Failure to follow this instruction may result in personal injury, economic loss, or malfunction.
- Install the safety device at the out of the controller for stable system operation against external power error, controller malfunction, etc.**
Failure to follow this instruction may result in fire, personal injury, or economic loss.

Caution

- When connecting the power input, use AWG 28-16(0.081 to 1.31mm²) cable or over.**
- Must use the insulated trans at the power input.**
Failure to follow this instruction may result in fire, or personal injury.
- Use the unit within the rated specifications.**
Failure to follow this instruction may result in fire or product damage.
- Use dry cloth to clean the unit, and do not use water or organic solvent.**
Failure to follow this instruction may result in fire.
- Do not use the unit in the place where flammable/explosive/corrosive gas, humidity, direct sunlight, radiant heat, vibration, impact, or salinity may be present.**
Failure to follow this instruction may result in fire or explosion.
- Keep metal chip, dust, and wire residue from flowing into the unit.**
Failure to follow this instruction may result in fire or product damage.
- If a ribbon cable is used as the I/O line, connect the cable correctly and prevent from poor contact.**
Failure to follow this instruction may result in malfunction.
- Note that this device is KCC certified for commercial use.**
Make proper applications for the product.

※The above specifications are subject to change and some models may be discontinued without notice.
※Be sure to follow cautions written in the instruction manual, user manual and the technical descriptions (catalog, homepage).

Ordering Information

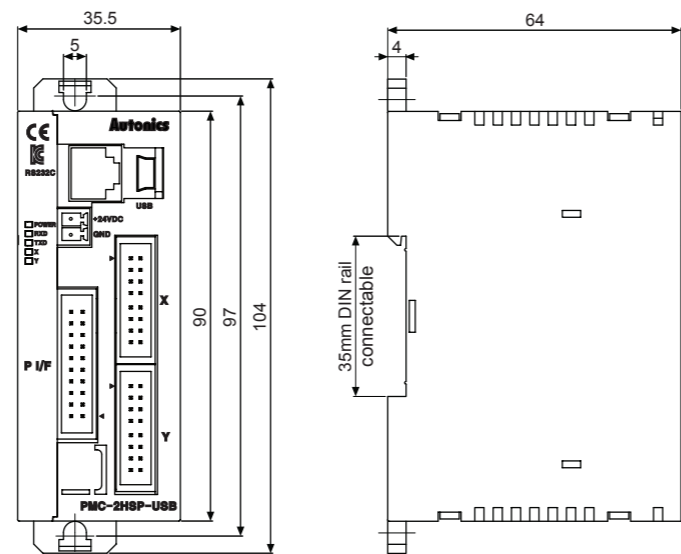
PMC - 2HSP - USB	Communication type	USB	USB / RS232C
		485	RS485 / RS232C
Axis/Type	2HSP	2-Axis high speed interpolation	
	2HSN	2-Axis high speed normal	
Item	PMC	Programmable Motion Controller	

Specifications

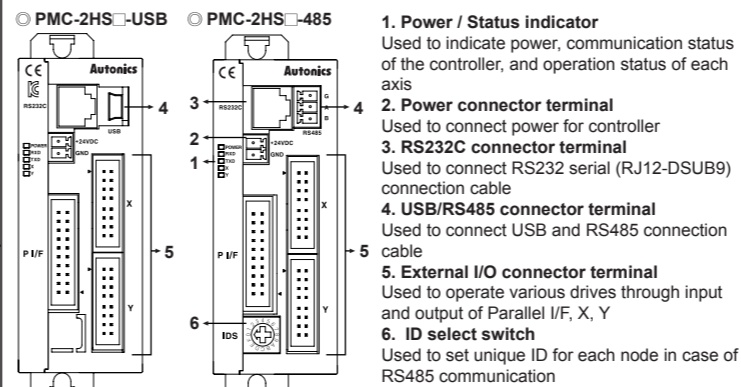
Series	PMC-2HSP	PMC-2HSP-485	PMC-2HSN	PMC-2HSN-485
Model	PMC-2HSP-USB	PMC-2HSP-485	PMC-2HSN-USB	PMC-2HSN-485
Control axis	2-axis			
Motor for control	Pulse string input stepper motor or servo motor			
Power supply	24VDC=			
Allowable voltage range	90 to 110% of rated voltage			
Power consumption	Max. 6W			
Inposition range	-8,388,608 to 8,388,607 (selectable absolute/relative value, available pulse-scaling function)			
Range for the drive speed	1 pps to 4 Mpps (1 to 8,000pps × Magnification 1 to 500)			
Pulse output mode	1 Pulse/2 Pulse output (line driver output)			
Operation mode	Jog / Continuous / Index / Program			
Index step numbers	64 steps per each axis			
Step	200 steps			
Control	ABS (Move absolute position), INC (Move relative position), HOM (Home search), LID ^{※1} (2-axis liner interpolation), CID ^{※1} (2-axis CW circular interpolation), FID ^{※1} (2-axis CW arc interpolation), RID ^{※1} (2-axis CCW arc interpolation), TIM (Timer), JMP (Jump), REP (Start repetition), RPE (End repetition), ICJ (Jump input condition), IRD (Stand-by external input), OPC (ON/OFF Output port), OPT (ON pulse from output port), NOP (No Operation), END (End program)			
Start	Power On program auto-start function			
Home search	Power On home search auto-start function			
Home search mode	High speed near home search (step 1) → Low speed home search (step 2) → Encoder Z phase search (step 3) → Offset move (step 4)			
I/O	<ul style="list-style-type: none"> Parallel I/F (CN3): 13 inputs, 4 outputs X-axis (CN 4) / Y-axis (CN 5): 8 inputs, 6 outputs (general-purpose I/O, two of each) 			
Environment	Ambient temp.	0 to 45°C, storage: -15 to 70°C		
	Ambient humi.	20 to 90%RH, storage: 20 to 90%RH		
Accessories	<ul style="list-style-type: none"> [Common] Power connector, I/O connector (P/I/F, X-axis, Y-axis), RS232C communication cable (1.5m): 1 [USB type] USB communication cable 1m: 1 [RS485 type] RS485 connector: 1 			
Approval	CE	CE	CE	CE
Weight ^{※2}	Approx. 344g (approx. 101.5g)	Approx. 308.7g (approx. 101.6g)	Approx. 344g (approx. 101.5g)	Approx. 308.7g (approx. 101.6g)

※1: These commands are only for PMC-2HSP series.
※2: The weight includes packaging. The weight in parenthesis is for unit only.
※Environment resistance is rated at no freezing of condensation.

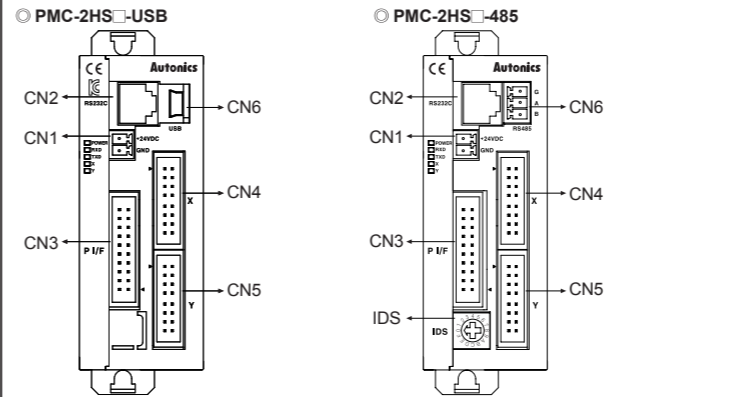
Dimensions



Unit Description



External I/O Terminal Connection



Connector

Connector no.	Description
CN1	Power connector
CN2	RS232C connector
CN3	Parallel I/F connector
CN4	X-Axis I/O connector
CN5	Y-Axis I/O connector
CN6	PMC-2HSP/2HSN-USB: USB connector PMC-2HSP/2HSN-485: RS485 connector
IDS	ID selection switch

Power connector (CN1)

Pin no.	Signal name
1	24VDC
2	GND (0V)

RS232C connector (CN2)

Pin no.	Signal name	I/O	Description
1	TXD	Output	Receiving data
2	RXD	Input	Transmitting data
3	GND	—	Ground
4	—	—	—
5	—	—	N-C
6	—	—	—

X, Y-Axis Input/Output connector (CN4, CN5)

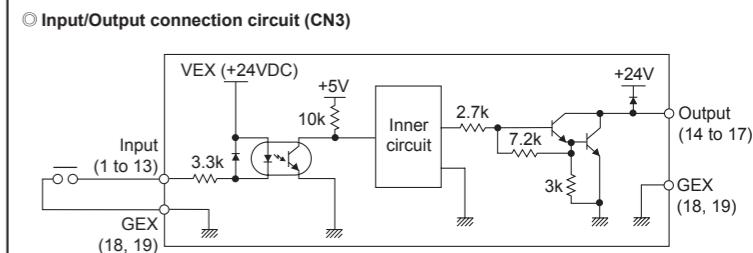
Pin no.	Signal name	I/O	Description
1	n P+P	Output	Drive pulse in the CW + direction
2	n P+N	Output	Drive pulse in the CW - direction
3	n P-P	Output	Drive pulse in the CCW + direction
4	n P-N	Output	Drive pulse in the CCW - direction
5	n OUT0	Output	General output 0
6	n OUT1	Output	General output 1
7	n IN0	Input	General input 0
8	n IN1	Input	General input 1
9	n STOP2	Input	Encoder Z-phase
10	n STOP1	Input	Home
11	n STOP0	Input	Near Home
12	n LMT+	Input	+ direction limit
13	n LMT-	Input	- direction limit
14	EMG	Input	Emergency stop
15	GEX	—	Ground
16	VEX	—	Power supply for sensor (24VDC, Max. 100mA)

RS485 connector (CN6)

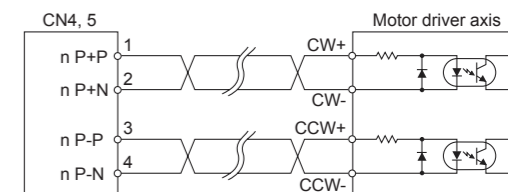
Pin no.	Signal name	I/O	Description
1	B (-)	I/O	Transmitting / Receiving data
2	A (+)	I/O	Transmitting / Receiving data
3	G	—	※1

※1: Connect the ground when it is required depending on communication environments.

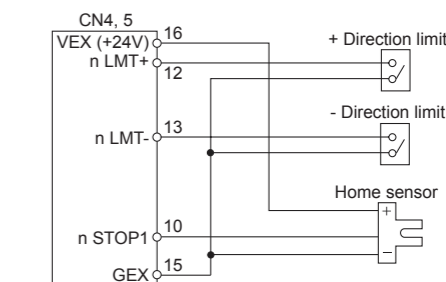
I/O Connection Diagram



Example of motor drive connection



Example of limit and home sensor connection



Manual and Software

For the detail information and instructions, please refer to user manual and be sure to follow cautions written in the technical descriptions (catalog, homepage).
Visit our homepage (www.autonics.com) to download manuals and software.

Cautions during Use

- Follow instructions in 'Cautions during Use'.
Otherwise, It may cause unexpected accidents.
- 24VDC power supply should be insulated and limited voltage/current or Class 2, SELV power supply device.
- Install a power switch or circuit breaker in the easily accessible place for supplying or disconnecting the power.
- Wire as short as possible and keep away from high voltage lines or power lines, to prevent inductive noise.
- Run the unit after proper parameter settings depending on the load and environment.
- Make sure that Power On function is set to ON in atMotion program before supplying the power to the unit.
- Keep the distance between power cable and signal cable more than 10cm.
- It is recommended to use twisted pair shield wire when connecting cables to CN3, 4, 5 connectors.
Ground the shield wires depending on the installation environment.
- It is recommended to use the communication cables provided with the product. (RS232C, USB)
- When wiring the RS485 cable, twist pair wire is recommended, and use AWG 24 (0.2mm²) cable or over.
- This unit may be used in the following environments.
 - ① Indoors (in the environment condition rated in 'Specifications')
 - ② Altitude max. 2,000m
 - ③ Pollution degree 2
 - ④ Installation category II

Major Products

- Photoelectric Sensors
- Fiber Optic Sensors
- Door Sensors
- Door Side Sensors
- Area Sensors
- Proximity Sensors
- Pressure Sensors
- Rotary Encoders
- Connector/Sockets
- Switching Mode Power Supplies
- Control Switches/Lamps/Buzzers
- I/O Terminal Blocks & Cables
- Stepper Motors/Drivers/Motion Controllers
- Graphic/Logic Panels
- Field Network Devices
- Laser Marking System (Fiber, CO₂, Nd: YAG)
- Laser Welding/Cutting System
- Temperature Controllers
- Temperature/Humidity Transducers
- SSRs/Power Controllers
- Counters
- Timers
- Panel Meters
- Tachometer/Pulse (Rate) Meters
- Display Units
- Sensor Controllers

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