

PMC-2HSP/PMC-2HSN Series

2-axis High Speed Interpolation/Normal Motion Controller

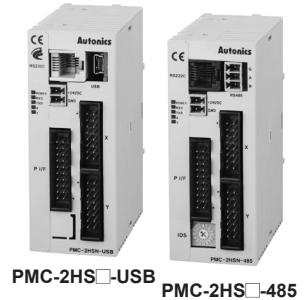
■ Features

- Independent 2-axis controlling with high operating speed of max. 4Mpps
- Linear/Circular interpolation control (PMC-2HSP)
- Realizing a wide variety of operation up to 200 steps using 17 control commands combination (13 commands except arc/linear interpolation command for PMC-2HSN series)
- Various control interface available (USB, RS232C, RS485, Parallel I/F)
- Controlling up to 32 axes (16-unit)
via RS485 serial communication (Modbus RTU)
- 4 operation modes: Jog, Continuous, Index, Program mode
- Symmetrical/asymmetrical trapezoid, S-shaped de/acceleration driving function

⚠ Please read "Safety Considerations" in operation manual before using.



(except for PMC-2HS□-485)



■ User Manual

- Please refer to user manual for detailed instructions and specifications.
- Visit our web site (www.autonics.com) to download user manual and software [atMotion].
- User manual describes installing software, setting parameter and program, operation mode, and multi-axis operation, etc. to operate motion controller.

■ Software (atMotion)

atMotion is the windows software designed to operate motion control for motion device.

- Compatible with Microsoft Windows 98, NT, XP (32-bit, 64-bit), Vista (32-bit, 64-bit), 7 (32-bit, 64-bit), 8 (32-bit, 64-bit) and 10 (32-bit, 64-bit)
- Supports 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200 bps communication speeds
- Available to use on all OS supported COM ports (COM1 to COM256)
- Multilingual support (korean, english)
- Provides the calculator for convenience (calculates PPS, center of interpolation, end coordinates)

■ Ordering Information

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

■ Specifications

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	1pps to 4Mpps (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			
Program function	Step	200 steps		
	Control	ABS, INC, HOM, LID ^{※1} , CID ^{※1} , FID ^{※1} , RID ^{※1} , TIM, JMP, REP, RPE, ICJ, IRD, OPC, OPT, NOP, END		
	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		• Parallel I/F (CN3): 13 inputs, 4 outputs • X-axis (CN4) / Y-axis (CN5): 8 inputs, 6 outputs (general-purpose I/O, two of each)		
Environ-ment	Ambient temperature	0 to 45°C, storage: -15 to 70°C		
	Ambient humidity	20 to 90%RH, storage: 20 to 90%RH		
Accessory		• [Common] Power connector, I/O connector: 3 (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
Weight ^{※2}		Approx. 344g (approx. 101.5g)	Approx. 308.7g (approx. 101.6g)	Approx. 344g (approx. 101.5g)

※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.

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■ Standard Operation Method

There are three methods to operate the motion controller.

- Operation by PC
Connect a PC and the controller with communication cable and run dedicated program (atMotion).
- Operation by Parallel I/F
Connect a sequence controller or switch to Parallel I/F.
- Operation by serial communication (dedicated communication protocol)
Using serial communication protocol, operate according to program writing by user.

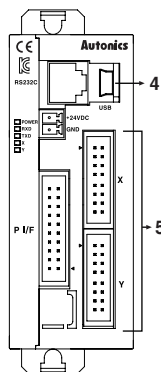
■ Program Commands

Command type	Code	Description
Drive commands	ABS	Move absolute position
	INC	Move relative position
	HOM	Home search
	LID※1	2-axis linear interpolation
	CID※1	2-axis CW circular interpolation
	FID※1	2-axis CW arc interpolation
I/O commands	RID※1	2-axis CCW arc interpolation
	ICJ	Jump input condition
	IRD	Stand-by external input
	OPC	ON/OFF output port
Program control commands	OPT	ON pulse from output port
	JMP	Jump
	REP	Start repetition
	RPE	End repetition
	END	End program
Others	TIM	Timer
	NOP	No operation

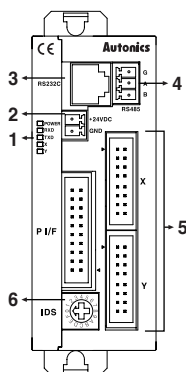
※1: These commands are only for PMC-2HSP series.

■ Unit Descriptions

◎ PMC-2HS□-USB



◎ PMC-2HS□-485



1. Power / Status indicator

Used to indicate power, communication status of the controller, and operation status of each axis.

2. Power connector terminal

Used to connect power for controller

3. RS232C connector terminal

Used to connect RS232 serial (RJ12-DSUB9) connection cable

4. USB/RS485 connector terminal

Used to connect USB and RS485 connection cable

5. External I/O connector terminal

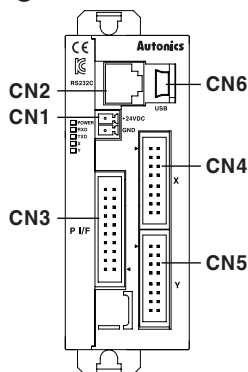
Used to operate various drives through input and output of Parallel I/F, X, Y

6. ID select switch

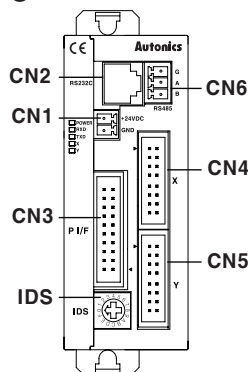
Used to set unique ID for each node in case of RS485 communication

■ External I/O Terminal Connection

◎ PMC-2HS□-USB



◎ PMC-2HS□-485



● 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

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Connector Cables/ Sensor Distribution Boxes/Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies

(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

(T) Software

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● Power Connector (CN1)

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

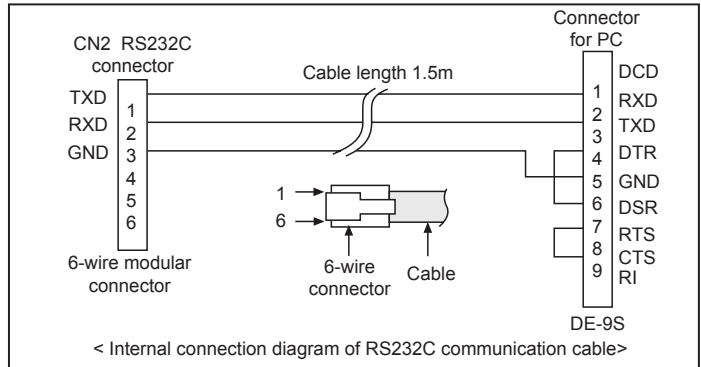
<CN3 pin no.>

20	19
18	17
16	15
14	13
12	11
10	9
8	7
6	5
4	3
2	1

● RS232C Connector (CN2)

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

※The internal connection diagram of RS232C communication cable is shown as below.



● Parallel I/F Connector (CN3)

The Parallel I/F connector which is connected with a sequencer or mechanical contacts operates motion controller same as PC program. When input signal is ON, the input signal terminal and GEX terminal are connected by mechanical contacts or open collector output and open collector output transistor is ON when the output signal is ON.

Pin no.	Signal name	I/O	Description
1	RESET	Input	Reset
2	HOME	Input	Home search start command
3	STROBE	Input	Drive start command
4	X/JOG Y+	Input	X-axis designate/Jog Y+
5	Y/JOG Y-	Input	Y-axis designate/Jog Y-
6	STEP SL0/RUN+/JOG X+	Input	Register designate 0/Run+/Jog X+
7	STEP SL1/RUN-/JOG X-	Input	Register designate 1/Run-/Jog X-
8	STEP SL2/SPD0	Input	Register designate 2/Drive speed designate 0
9	STEP SL3/SPD1	Input	Register designate 3/Drive speed designate 1
10	STEP SL4/JOG	Input	Register designate 4/Jog designate
11	STEP SL5/STOP	Input	Register designate 5/Drive stop
12	MODE0	Input	Operation mode designate 0
13	MODE1	Input	Operation mode designate 1
14	X DRIVE/END	Output	X-axis drive/Drive end pulse
15	Y DRIVE/END	Output	Y-axis drive/Drive end pulse
16	X ERROR	Output	X-axis error
17	Y ERROR	Output	Y-axis error
18	GEX	—	Ground
19	GEX	—	Ground
20	VEX	—	Power supply for sensor (24VDC, max. 100mA)

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● X, Y-axis Input/Output Connector (CN4, CN5)

CN4 and CN5 are I/O signals for X-axis and Y-axis respectively.

The pin arrangement of CN4 and CN5 are equal. 'n' in the table means X for CN4 and Y for 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)

<CN4, CN5 pin no.>

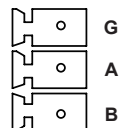
1	2
3	4
5	6
7	8
9	10
11	12
13	14
15	16

※CN4, 5 input/output is same as CN3 input/output connections.

Drive pulse output of motion controller which is inputted to motor driver is line driver output.

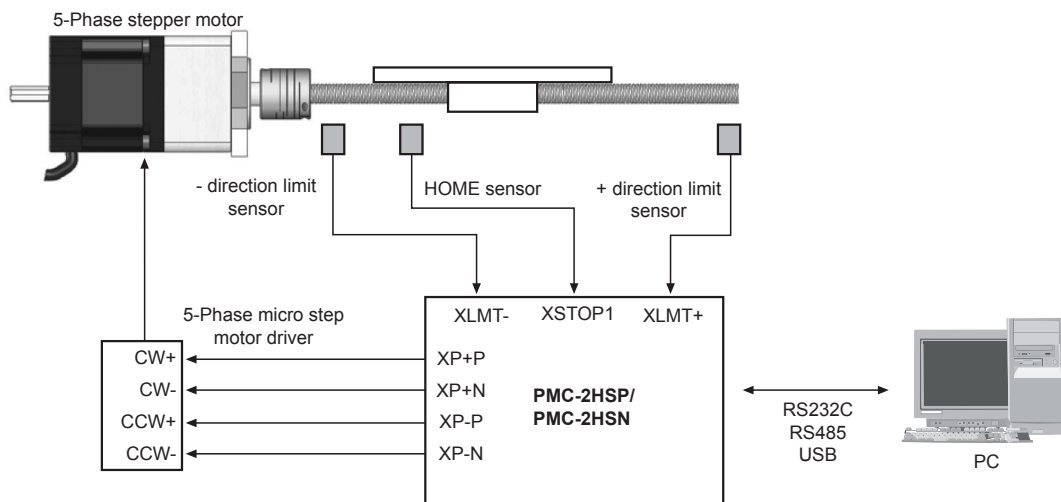
● RS485 Connector (CN6)

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.

■ Connections



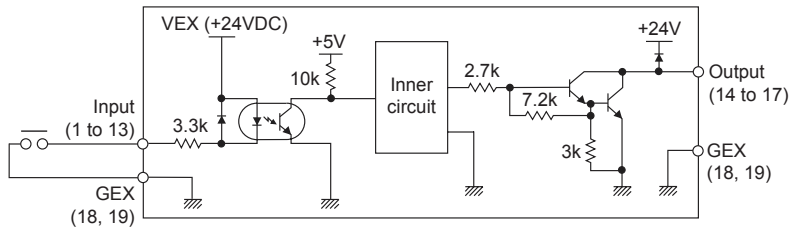
< Basic configuration of the motion controller (configuration only for X-axis) >

(A)	Photoelectric Sensors
(B)	Fiber Optic Sensors
(C)	Door/Area Sensors
(D)	Proximity Sensors
(E)	Pressure Sensors
(F)	Rotary Encoders
(G)	Connectors/ Connector Cables/ Sensor Distribution Boxes/Sockets
(H)	Temperature Controllers
(I)	SSRs / Power Controllers
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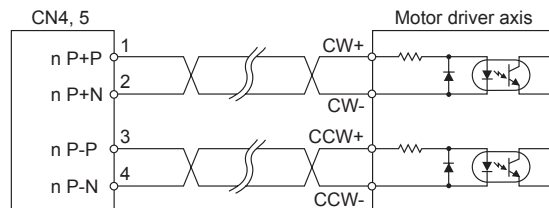
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I/O Connections Diagram

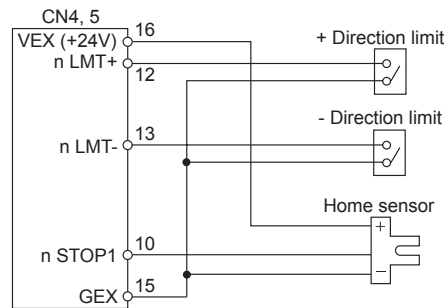
Input/Output connection circuit (CN3)



Example of motor drive connection



Example of limit and home sensor connection



Dimensions

(unit: mm)

