

Autonics Programmable Motion Controller PMC-2HSP/PMC-2HSN SERIES

M A N U A L



Thank you very much for selecting Autonics products.
For your safety, please read the following before using.

Caution for your safety

- ※ Please keep these instructions and review them before using this unit
- ※ Please observe the cautions that follow:
- Warning** Serious injury may result if instructions are not followed.
- Caution** Product may be damaged, or injury may result if instructions are not followed.
- ※ The following is an explanation of the symbols used in the operation manual.
- Caution**: Injury or danger may occur under special conditions.

Warning

- In case of using this unit with machinery (Ex: nuclear power control, medical equipment, ship, vehicle, train, airplane, combustion apparatus, safety device, crime/disaster prevention equipment, etc) which may cause damages to human life or property, it is required to install fail-safe device.**
It may cause a fire, human injury or damage to property.
- Please read and fully understand this user manual prior to operating the unit.**
Non-compliance may cause mechanical loss, injury or malfunction due to wrong operation.
- Avoid using the unit where flammable or explosive gas or direct ray of the light exists.**
Non-compliance may cause electric shock, fire, personal injury or damage to property.
- Limit switches and emergency stop switches should be installed where dangerous accident-prone environments.**
It may cause a fire, human injury or property loss.
- Install with the plan for power failure.**
It may cause a fire, human injury or property loss.
- Keep any impurities from entering into ventilation window.**
It may cause fire, failure, damage or degradation.
- Confirm that power cables and signal cables are firmly fixed.**
It may cause an electric shock, fire and malfunction.
- Confirm the power input specification and connect the power after checking the input terminal.**
Non-compliance may lead to fire.
- Do not wire, inspect or repair when the power is applied.**
It may cause an electric shock, damage or malfunction.
- Do not cut off power or disconnect connectors while operating the unit.**
Doing so may result in personal injury, damage to property or wrong operation.
- Do not disassemble or alter the unit.**
It may cause an electric shock or a fire.

Caution

- Use rectified power supply via insulation transformer for the input power.**
Non-compliance may lead to fire, electric shock personal injury or damage to property.
- Tighten the volts for power connectors and RS485 connectors with max. 0.4N·m torque.**
The excessive power may cause the poor contact.
- Use the AWG 28-16 line for the power line.**
Non-compliance may lead to the outbreak of fire.
- If a ribbon cable is used as the I/O line, connect the cable correctly and prevent from poor contact.**
The poor contact may cause wrong operation.
- Connect after checking the connector specification and format.**
The use of wrong connector may cause fire, electric shock or damage to the product.
- Use the product at the range of the range/performance.**
Non-compliance may decrease the life cycle and lead to fire.
- In wiring, possibly separate cables from the power line, the load line not to be affected by noise.**
The noise may lead to wrong operation and damage to product.
- In cleaning unit, do not use water or an oil-based detergent and use dry towels.**
It may cause an electric shock, fire or damage.
- Please handle it as industrial waste for exhausting.**
- 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.

Ordering information

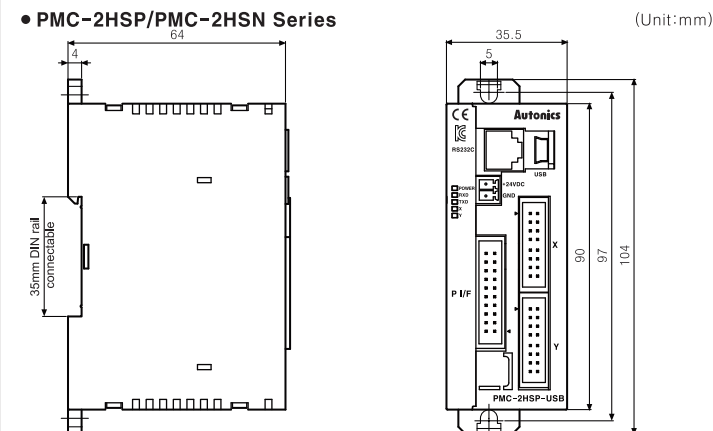
PMC	-	2HSP	-	USB	Connector type	USB	USB+RS232C
					485	RS485+RS232C	
Item	-	2HSP	-	2HSN	Axis/Type	2-Axis High Speed Interpolation	2-Axis High Speed Normal
					PMC	Programmable Motion Controller	

Specifications

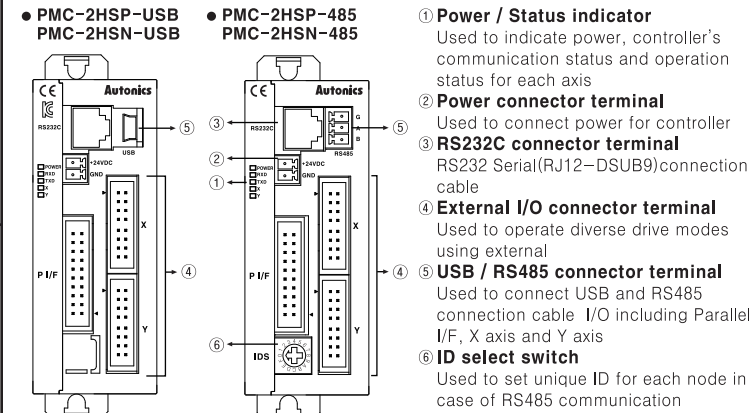
Series	PMC-2HSP	PMC-2HSP-485	PMC-2HSN	PMC-2HSN-485
Model	PMC-2HSP-USB	PMC-2HSP-485	PMC-2HSN-USB	PMC-2HSN-485
Control axis	2-axis			
Power supply	24VDC			
Allowable voltage range	90~110% of rated voltage			
Power consumption	6W Max.			
Inposition range	-8,388,608~+8,388,607(Absolute / Relative value selectable, Pulse-scaling function available)			
Motor for control	Stepping or Servo motors(plus input type)			
Range for the drive speed	1 PPS ~ 4 MPPS(1~8,000PPS×Magnification 1~500)			
Pulse output type	1 pulse / 2 pulse output type support(Line Driver output)			
Program mode	Jog mode			
	Continuous mode			
	Index mode (Number of Index: 64EA)			
	Power On Program Start function			
	Program Step : 200 step			
	ABS(Move absolute position)			
	INC(Move relative position)			
	HOM(Home search)			
	LID(2-axis liner interpolation)	-		
	CID(2-axis CW circular interpolation)	-		
	FID(2-axis CW arc interpolation)	-		
	RID(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)	-			
Home Search	4-Step : High Speed Near Home Search, Low speed Home Search, Low speed Z-phase search, High speed offset Power On Home Search function			
I/O	•Parallel I/F(CN3) : Input 13EA, Output 4EA •X-axis(CN 4) / Y-axis(CN 5) : Input 8EA, Output 6EA(General-purpose I/O, 2EA each)			
Environment	Ambient temperature: 0 ~ 45°C, Storage temperature: -15 ~ 70°C Ambient humidity: 20 ~ 90%RH, Storage humidity: 20 ~ 90%RH			
Accessories	• Common: Power connector, I/O connector(P I/F, X-axis, Y-axis) RS232C communication cable (1.5m) 1EA, Manual • USB Type: UBS Communication cable 1m 1EA • RS485 Type: Connector 1EA			
Approval	CE, RoHS	CE	CE, RoHS	CE
Unit weight	Approx. 102g	Approx. 101g	Approx. 102g	Approx. 101g

※ Environment resistance is rated at no freezing or condensation.

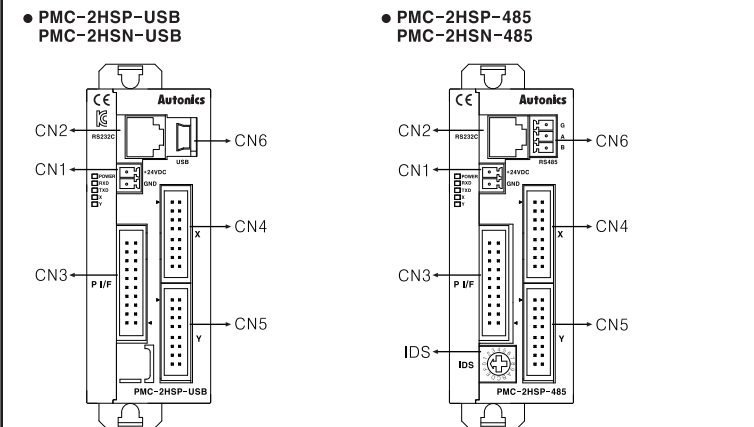
Dimensions



Parts description

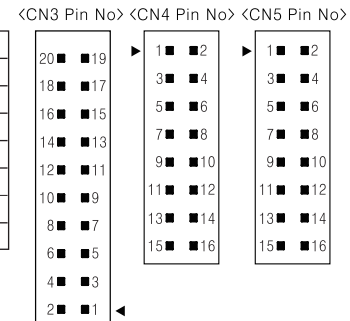


External I/O terminal connection



Connector

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/2HSN485:RS485 connector
IDS	ID Select switch



CN1 Power Connector

Pin No.	Signal	Pin No.	Signal
1	24VDC	2	GND(OV)

CN2 RS232C Connector

Pin No.	Signal	I/O	Description
1	TXD	Output	Transmitting data
2	RXD	Input	Receiving data
3	GND	-	Ground
4	-	-	X
5	-	-	X
6	-	-	X

CN4, 5 X, Y I/O Connector

Pin No.	Signal	I/O	Description
1	n P+P	output	CW+ drive pulse
2	n P+N	output	CW- drive pulse
3	n P-P	output	CCW+ drive pulse
4	n P-N	output	CCW- drive pulse
5	n OUT0	output	General Purpose output 0
6	n OUT1	output	General Purpose output 1
7	n IN0	input	General Purpose input 0
8	n IN1	input	General Purpose 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(OV)
16	VEX	-	Sensor power(24VDC)

※ (Note1): Connect the ground when it is required depending on communication environments.

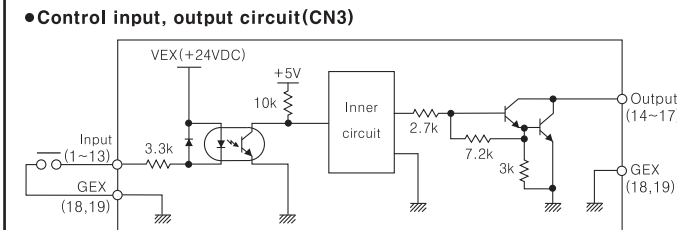
CN3 Parallel I/F Connector

Pin No.	Signal	I/O	Description
1	RESET	input	Reset
2	HOME	input	Home search start
3	STROBE	input	Drive start
4	X/JOG Y+	input	X-axis / JOG 2 mode Y+
5	Y/JOG Y-	input	Y-axis / JOG 2 mode Y-
6	STEPSL0/RUN+/JOG X+	input	Step Selection 0 / Run+ / JOG 2 mode X+
7	STEPSL1/RUN-/JOG X-	input	Step Selection 1 / Run- / JOG 2 mode X-
8	STEPSL2/SPD0	input	Step Selection 2 / Drive speed 0
9	STEPSL3/SPD1	input	Step Selection 3 / Drive speed 1
10	STEPSL4/JOE	input	Step Selection 4 / JOG
11	STEPSL5/STOP	input	Step Selection 5 / Drive stop
12	MODE0	input	RUN mode 0
13	MODE1	input	RUN mode 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 (OV)
19	GEX	-	Ground (OV)
20	VEX	-	Sensor power (max. 24VDC, 100mA)

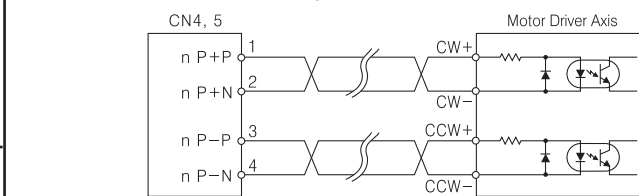
CN6 RS485 Connector

Pin No.	Signal	I/O	Description
1	B(-)	I/O	Transmitting / Receiving data
2	A(+)	I/O	Transmitting / Receiving data
3	G	-	(Note1)

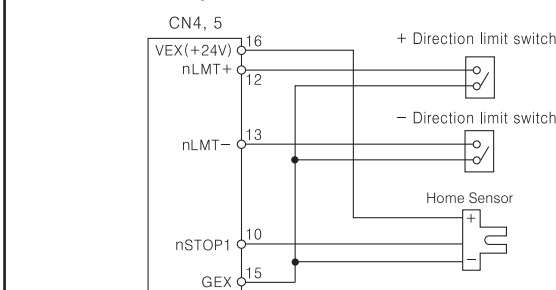
I/O connection diagram



Motor Drive Connection Example



Connection Example of Limit switch and Home Sensor



Manual and Software

Visit our web site (www.autonics.com) to download user manual and necessary S/W (MotionStudio).

Caution for using

- Caution for operating Motion Controller
 - Set positioning coordinates and parameters before operating the motion controllers.
 - Select the proper driving speed with steadily increasing the system speed using Jog or Continuous mode.
 - Select the proper de/acceleration parameters depending on system load.
 - Caution for using ID Select S/W
 - Be sure that each unit must have individual ID on the Multi-drop network.
 - Because the ID at the initial power-on is set, it is recommended not to change ID Select S/W after power-on. Although ID is changed after power-on, units don't have a changed ID.
 - Caution for Power On function
 - If Power On Home Search / Power On Program Start function is set to ON, these functions will be activated as soon as power is supplied to motion controllers. Make sure that Power On function is set to ON in Motion Studio Program before supplying the power to the unit.
 - If Power On function is not necessary, disconnect CN3, 4, 5 connectors and withdraw the setting in Motion Studio Program.
 - Caution for wiring
 - Check your connections first to avoid faulty wiring.
 - 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 cables if it necessary depending on installation environments.)
 - It is recommended to use the communication cables provided with the product. (RS232C, USB)
 - It is recommended to use twisted pair wires (24-AWG) for RS485 cables. (Refer to user manual for more details.)
 - Installation environment
 - It shall be used indoor
 - Pollution Degree II
 - Altitude Max. 2000m
 - Installation Category II
- ※ It may cause malfunction if above instructions are not followed.

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/soldering system
- Temperature controllers
- Temperature/Humidity transducers
- SSR/Power controllers
- Counters
- Timers
- Panel meters
- Tachometer/Pulse(Rate) meters
- Display units
- Sensor controllers

Autonics Corporation
<http://www.autonics.com>

Satisfiable Partner For Factory Automation

■ HEAD QUARTERS:
18, Bansong-ro 513beon-gil, Haundae-gu, Busan, Korea

■ OVERSEAS SALES:
#402-404, Bucheon Techno Park, 655, Pyeongcheon-ro, Wonmi-gu, Bucheon, Gyeonggi-do, Korea
TEL: 82-32-610-2730 / FAX: 82-32-329-0728
E-mail: sales@autonics.com