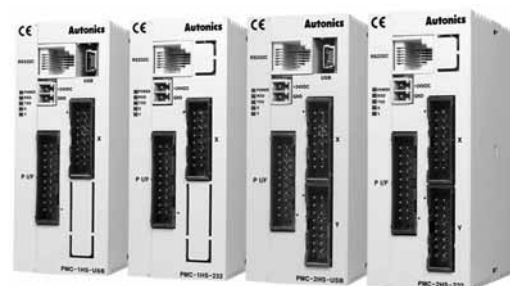


1 • 2-Axis High Speed Programmable Motion Controller

1 • 2-Axis high speed programmable motion controller

■ Features

- Max. 4Mhz high-speed operation
- 4 operation modes : Scan, Continuous, Index, Program
- 12 control command and 64 steps of operations
- Parallel I/O terminal built in which is connectable on PLC
- Operation program by exclusive switch, making and editing parameter
- Easy to operation of X, Y stage with joy stick
- RS232C port for all types
- Teaching and monitoring function by using teaching unit (PMC-2TU-232)



PMC-1HS (USB/485) PMC-1HS (232) PMC-2HS (USB/485) PMC-2HS (232)

● Teaching unit (Sold separately)



PMC-2TU-232

⚠ Please read "Caution for your safety" in operation manual before using.



■ Ordering information

PMC	—	2HS	—	USB	
				232	RS232C
				485	RS485 / RS232C
				USB	USB / RS232C
		1HS			1-Axis High Speed Stand-Alone
		2HS			2-Axis High Speed Stand-Alone
		PMC			Programmable Motion Controller

■ Specifications

Model		PMC-1HS-232	PMC-1HS-485	PMC-1HS-USB	PMC-2HS-232	PMC-2HS-485	PMC-2HS-USB
Control axis		1-Axis			2-Axis (Each axis can be independently programmed)		
Motor for control		Pulse string input stepping motor or servo motor					
Power supply		24VDC ±10%					
Power consumption		6W Max.					
Operation mode		SCAN / CONTINUOUS / INDEX / PROGRAM					
Positioning type		Absolute type / Incremental type					
Index step numbers		64 indexes per axis					
Positioning range		-8,388,608 ~ +8,388,607(Pulse scaling function is available)					
Drive speed numbers		4					
Range for the drive speed configuration		1 pps ~ 4 Mpps(1~8000 × Magnification 1~500)					
Output pulse type		2 Pulse output(Line drive)					
Home search mode		High speed nearby search(Step1) → Low speed near home search(Step2) → Low speed Z-phase search(Step3) → High speed offset movement(Step4). Configuring the detection method and Enable/Disable in each step.					
Program function	Memory	EEPROM					
	Step	64 Steps					
	Control	ABS, INC, HOM, IJP, OUT, OTP, JMP, REP, RPE, END, TIM, NOP(12 EA)					
	Start	Power ON Program Auto-start function					
	Home search	Power ON Home search Auto-start function					

PMC-1HS/PMC-2HS Series

■ Specifications

Model		PMC-1HS-232	PMC-1HS-485	PMC-1HS-USB	PMC-2HS-232	PMC-2HS-485	PMC-2HS-USB
Teaching unit (Sold separately)		Adding operation mode, Parameter, Program drive handling (Scan operation, program execution, home search, etc)					
Common output		1 end point			2 end point		
Control interface		Parallel Interface P I/F					
Ambient temperature		0 ~ 45℃ (at non-dew status)					
Ambient humidity		35% ~ 85% (at non-dew status)					
Accessory	Common	Manual book & CD					
	Power connector	CN1 : MC1,5/2-ST-3.5(PHOENIX) 1EA					
	RS232C connector	CN2 : RS-232C communication cable(1.5m) 1EA					
	P I/F connector	CN3 : 20P MIL standard, 2.54mm connector 1EA					
	X axis input/ output connector	CN4 : 16P MIL standard, 2.54mm connector 1EA (2HS:2EA)					
	Y axis input/ output connector	———			CN5 : 16P MIL standard, 2.54mm connector 1		
	USB/485 connector	———	Included(※1)	Included(※2)	———	Included(※1)	Included(※2)
Unit weight		Approx. 96g			Approx. 102g		

(※1):RS485 connector → MC1,5/3-ST-3.5(PHOENIX) 1EA (※2):USB connector → USB communication cable(1.5m) 1EA

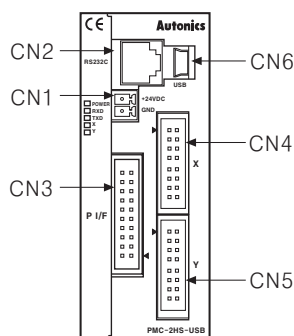
■ Driver operation

- Operate by Teaching unit(PMC-2TU-232)
- Connect Teaching unit cable and install JOG output, HOME search using operation button.
- Operate by Serial communication (Using Serial communication protocol)
- Operate the driver by program arranged by user using Serial communication command.

■ Commands in the operation program

Command type	Code	Description
Drive commands	ABS	Move absolute position
	INC	Move relative position
	HOM	Home search
I/O commands	IJP	Jump input condition
	OUT	ON/OFF of Output port
	OTP	ON pulse from Output port
Program control commands	JMP	Jump
	REP	Start repetition
	RPE	End repetition
	END	End program
Others	TIM	Timer
	NOP	No operation

■ Part descriptions



Connector No	Description
CN1	Power connector
CN2	RS232C I/F connector(Connect to PMC-2TU-232)
CN3	Parallel Interface(P I/F) connector
CN4	X-Axis I/O connector
CN5	Y-Axis I/O connector
CN6	USB connector or RS485 connector

※PMC-1HS type does not have I/O connector(CN5) of Y axis.

1 • 2-Axis High Speed Programmable Motion Controller

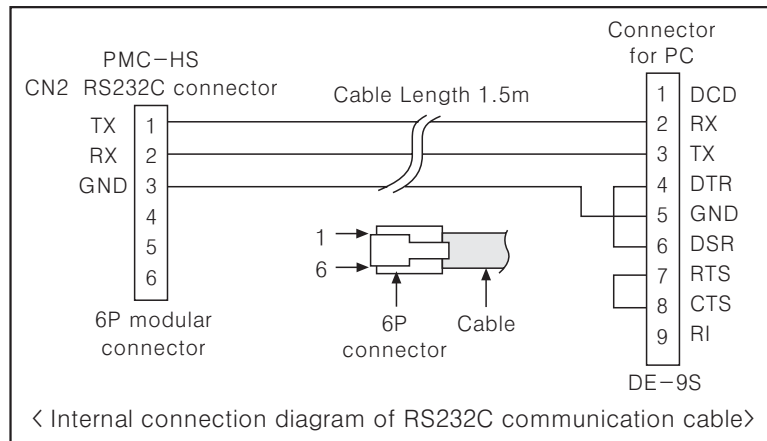
■ Power connector(CN1)

Pin No.	Signal name
1	+24V
2	GEX(0V)

■ RS232C serial I/F connector(CN2)

Pin No.	Signal name	Input/Output	Description
1	TXD	Output	Receiving data
2	RXD	Input	Transmitting data
3	GND	—	Ground
4	—	—	No-connection
5	—	—	No-connection
6	—	—	No-connection

(Note)The internal connection diagram of RS232C communication cable is shown as below.



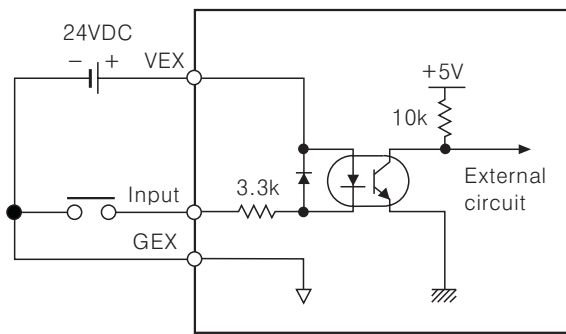
■ Parallel P I/F connector (CN3)

The Parallel P I/F connector is used to connect a parallel interface(P I/F) to a sequencer or mechanical contacts, operate drive with program saved in PMC-1HS/2HS of index data. When input signal is ON, the signal is connected with GEX terminal using mechanical contacts or open collector output etc. and open collector output transistor is ON when the output signal is ON.

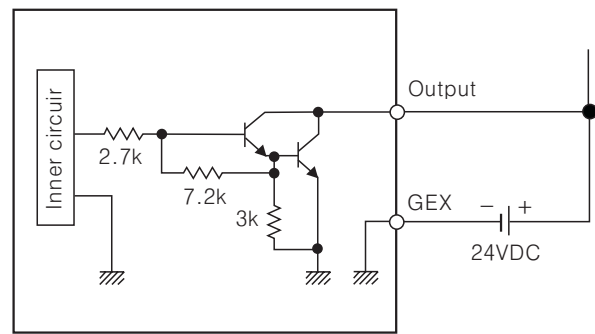
Pin No.	Signal name	Input/Output	Description
1	RESET	Input	Reset
2	HOME	Input	Home search start command
3	STORE	Input	Drive start command
4	X/SCANY +	Input	X-axis specification/Scan Y+
5	Y/SCANY -	Input	Y-axis specification/Scan Y-
6	REGSL0/RUN+/SCANX+	Input	Register specification 0/Run+/Scan X+
7	REGSL1/RUN-/SCANX-	Input	Register specification 1/Run-/Scan X-
8	REGSL2/SPD0	Input	Register specification 2/Drive speed specification 0
9	REGSL3/SPD1	Input	Register specification 3/Drive speed specification 1
10	REGSL4/SPD2	Input	Register specification 4/Scan specification
11	REGSL5/STOP	Input	Register specification 5/Drive stop
12	MODE0	Input	Operation mode specification 0
13	MODE1	Input	Operation mode specification 1
14	XDRIVE/END	Output	X-axis drive/Drive end pulse
15	YDRIVE/END	Output	Y-axis drive/Drive end pulse
16	XERROR	Output	X-axis error
17	YERROR	Output	Y-axis error
18	GEX	0V	Ground
19	GEX	0V	Ground
20	VEX	+24V	Power supply for sensor(Less than 24VDC, 100mA)

PMC-1HS/PMC-2HS Series

Input/Output connections(CN3)



< CN3 control input connections >

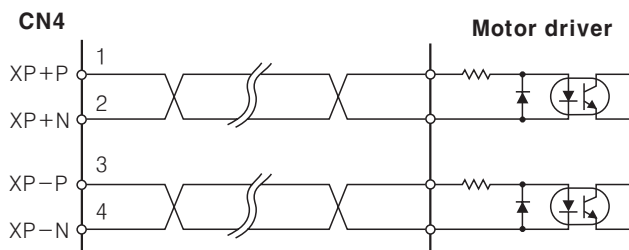


< CN3 control output connections >

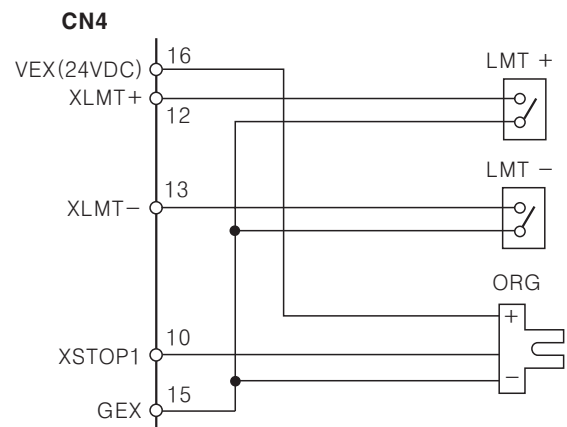
Input/Output connector(CN4, CN5)

CN4 and CN5 are I/O signals for X-Axis and Y-Axis respectively. The pin arrangement of CN4 and CN5 are equal. PMC-1HS does not have CN5. 'n' in the table means X for CN4 and Y for CN5.

Pin No.	Signal name	Input/Output	Description
1	nP+P	Output	Drive pulse in the + direction
2	nP+N	Output	Drive pulse in the + direction
3	nP-P	Output	Drive pulse in the - direction
4	nP-N	Output	Drive pulse in the - direction
5	nOUT0	Output	General output0/DCC
6	nINPOS	Input	Finish the servo inposition
7	nALARM	Input	Servo alarm
8	GEX		Ground
9	nSTOP2	Input	Encoder Z-phase
10	nSTOP1	Input	Home
11	nSTOP0	Input	Near Home
12	nLMT+	Input	LMT+
13	nLMT-	Input	LMT-
14	EMG	Input	Emergency stop
15	GEX		Ground
16	VEX		Power supply for sensor(24VDC)



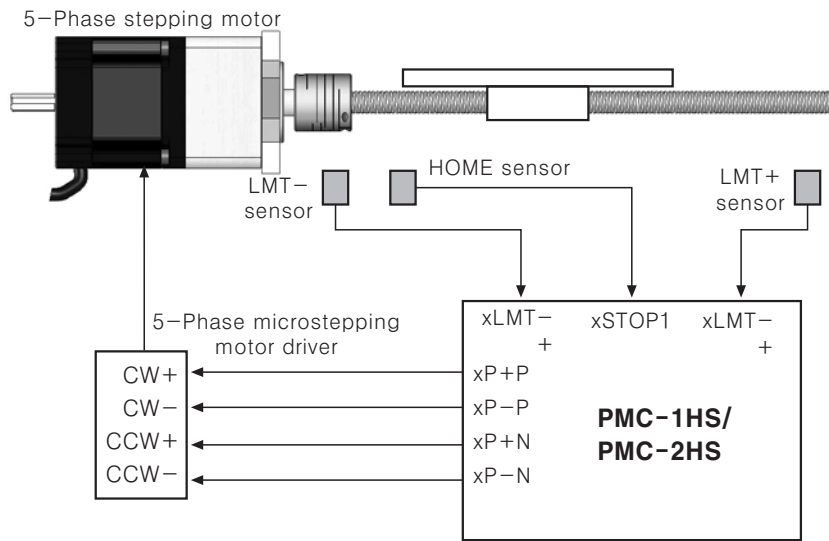
< Motor driver connection >



< LMT and HOME sensor connection >

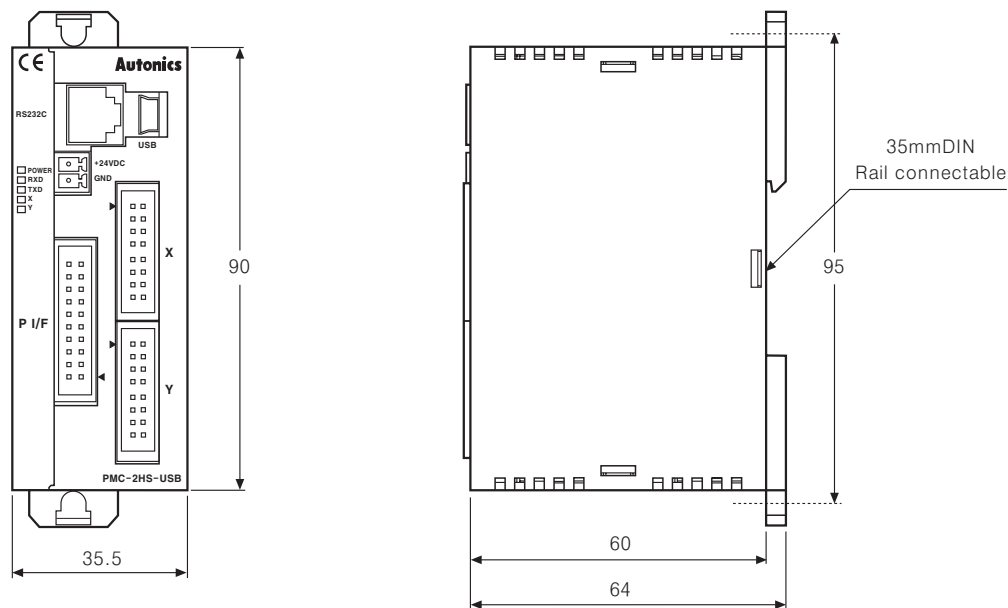
1 • 2-Axis High Speed Programmable Motion Controller

■ Connections

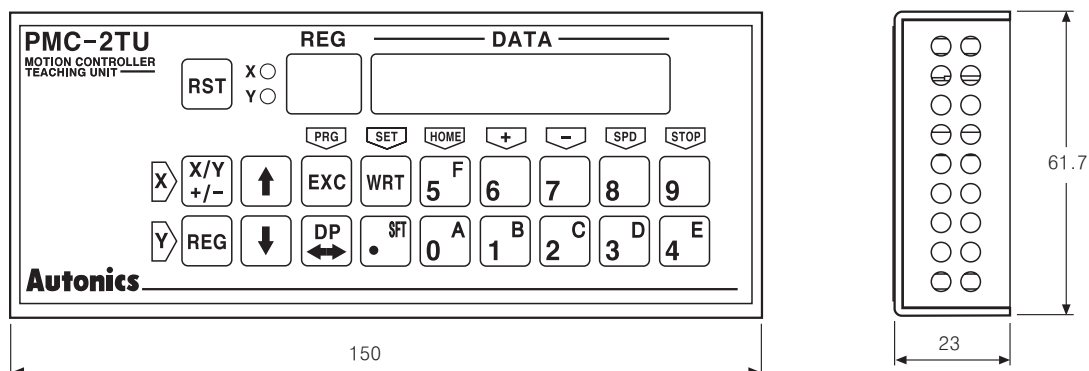


< Basic configuration of the motion controller(Configuration only for X-axis)>

■ Dimensions



■ Teaching unit PMC-2TU-232(Sold separately)

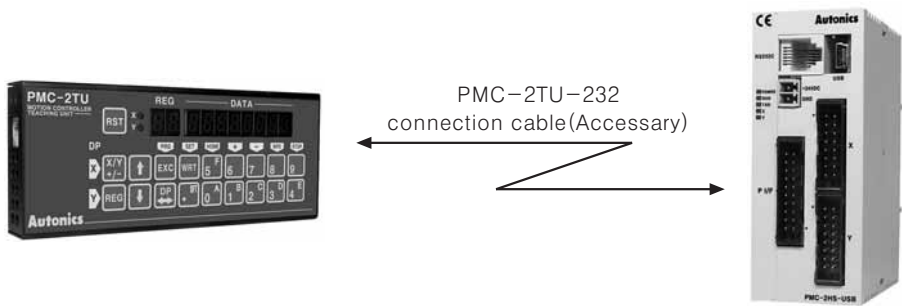


(Unit:mm)

PMC-1HS/PMC-2HS Series

■ Teaching unit PMC-2TU-232 (Sold separately)

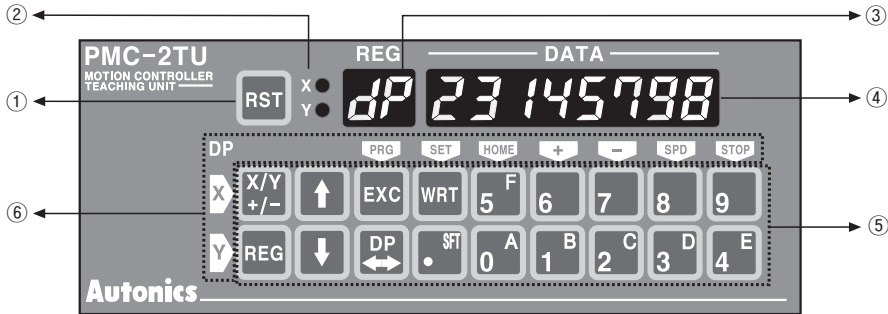
Teaching unit (PMC-2TU-232) is a device to arrange the operation mode, parameter and operation program without PC and it is also able to install start the operation program, HOME search and JOG operation. Connect to RS232C connector (CN2) using a cable(1.5m)



Teaching unit is divided into data edit mode and drive operation mode. The register number is displayed on REG of data edit mode and dp(drive operation) is displayed in drive operation mode and it will be a drive operation status when applying power. Use DP key to convert the status of data edit mode and drive operation mode.

Mode	Operation	REG display
Data edit	<ul style="list-style-type: none">Record operation mode parameter and operation programInstallation of index drive	Register number
Drive handling	<ul style="list-style-type: none">Displaying the current positionJOG operationHOME searchInstallation of program	dp (drive operation)

The front panel of the teaching unit shown as below;



- ①Reset : Reset the controller and Teaching unit.
- ②X/Y display : Display the current axis.
- ③Register number display/dp : Display the current register number when editing data and dp when operating drive.
- ④Data display : Display the data of each register when data editing and the current position of the axis when operating drive.
- ⑤Input key
 - X/Y : Convert the axis and the sign of input value and it is used to change mode data when inputting mode.
 - REG : Input the register number to display and it is returned to previous step pressing a key during data input.
 - ↑ ↓ : Increase or decrease the current register number.
 - EXC : Install the current command, but, ABS, INC, OUT, OTP, HOM1~4 are only valid.
 - DP : Convert the status of driver operation and data edit.
 - WRT : Enter a value when editing data.
- ⑥Display the key for drive operation :

Display the key function on a left and upside of the key as a yellow letter and the upper part operates X axis and the lower part operates Y axis.