(주)피에조테크놀리지
Piezoelectric Technology Co., Ltd.

Command Reference Manual

MODEL : PMC-xxxx

(Piezoelectric Motor Controller)

VER. 101

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Revision History

Version	Date	Changes	Status	Author/Approver
100	2013/03/21	First revision	draft	Jongmin Choi
101	2013/04/16	Added Velocity command	draft	Jongmin Choi

- The information is subject to change without notice for technical improvement

CONTENTS

1. Communication Function of PMC-xxxx

1-1. Connecting the PC and PMC-xxxx Controller allows following operations from the PC :

1-1-1. Writing and reading out the setting value

1-1-2. Reading out the measurement value

1-1-3. Reading out the control output status

1-1-4. Operating the control input

2. Communication Specification

Baud rate	115200 bps
Transmission code	ASC Ⅱ
Data length	8 bit
Stop bit length	1 bit
Parity check	Nil
Data classification	STX . ETX

3. Transmission Data Format (Command)

STX	COMMAND	ETX
'>'		'₩r'

STX	COMMAND	SPACE1	PARAMETER1	ETX
'>'		0x20		'₩r'

STX	COMMAND	SPACE1	PARAMETER1	SAPCE2	PARAMETER2	ETX
'>'		0x20		0x20	optional	'₩r'

STX	The code showing the head of transmit data ('>' = 0x3e).
COMMAND	Selects from the column of command on the command list to set.
SPACE1	Shows the separation between Command and Parameter1.
PARAMETER1	Selects from the column of command on the command list to set.
SPACE2	Shows the separation between Parameter1 and Parameter2.
PARAMETER2	Selects from the column of command on the command list to set.
ETX	The code showing the completion of transmit data ('₩r' = 0x0d).

4. Command list

4-1. Motion Commands (Point to Point – PTP)

Command	Parameter1	Parameter2	Description
ma	-2,147,000,000 ~ +2,147,000,000	-	Move to the absolute target position, [counts]. The target position can be specified absolute position, using the absolute position parameter. 1) Parameter1 : Assigning an absolute target position, [counts] 2) printf(">ma 1000₩r");
mr	-2,147,000,000 ~ +2,147,000,000	-	Move to the relative target position, [counts]. The target position can be specified relatively to the current desired position, using the relative position parameter. 1) Parameter1 : Assigning an relative target position, [counts] 2) printf(">mr 10000₩r");
home	-	-	Move to the home sensor. 1) printf(">home₩r");
monitor	0 ~ 1	-	During motion, the motion status can be continuously monitored. 1) Parameter1: Reports the current actual motor position and the target position, [counts]. [1:ON, 0:OFF, default=0] 2) printf(">monitor 0₩r");
auto	-	-	Automatic tuning. 1) printf(">auto₩r");
stop	-	-	Aborts the motion immediately. 1) printf(">stop₩r");

4-2. Open-Loop Commands

Command	Parameter1	Parameter2	Description
duration	1 ~ 600,000	-	Define the moving on-time. 1) printf(">duration 1000₩r");
interval	1 ~ 600,000	-	Define the time between the start of each step 1) Parameter1 : step interval (unit : ms) 2) printf(">interval 1000₩r");
cycle	1 ~ +2,147,000,000	-	Define the optional number of run. 1) printf(">cycle 10₩r");
re	-	-	Motor runs in reverse. 1) printf(">re₩r");
fo	-	-	Motor runs forward. 1) printf(">fo₩r");
bi	-	-	Move to both direction. 1) printf(">bi₩r");

4-3. Status Commands (It is a read only commands, indicating the recording status.)

Command	Parameter1	Parameter2	Description
rp	-	-	This command reports the actual controller position (Encoder Value). 1) printf(">rp₩r");
status	-	-	Reports the actual controller position and max./min. position reference limits. 1) printf(">status₩r");
inform	-	-	Reports the internal setting of controller. 1) printf(">inform₩r");
version	-	-	The "rv" command retrieves the controller Firmware version. 1) printf(">version₩r");

4-4. Configuration Commands

Command	Parameter1	Parameter2	Description
freq	20 ~ 100	-	Define the driving frequency. 1) Parameter 1 : Driving frequency (20~100KHz) 2) printf(">freq 68₩r");
duty	1~48	-	Define the duty. 1) Parameter 1 : Duty (1 ~ 48%) 2) printf(">duty 25₩r");
volt	16 ~ 35	-	Define the voltage. 1) Parameter 1 : Voltage (unit : V) 2) printf(">volt 30₩r");
motor	2 ~ 4	-	Define the motor type. 1) Parameter 1 : Motor type 1-1) TULA35 : 2 1-2) TULA50 : 3 1-3) TULA70 : 4 2) printf(">motor 3₩r");
encoder	1 ~ 4	-	Define the encoder type. 1) Parameter 1 : Encoder type 1-1) A/B signal : 1 1-2) A/B/Z signal : 2 1-3) PR sensor : 3 1-4) MR sensor : 4 2) printf(">encoder 2₩r");
resolution	1 ~ 100000	-	Define the resolution of encoder. 1) Parameter 1 : nanometer (unit : nm) 2) printf(">volt 1000₩r");
encswap	0 ~ 1	-	Swap Encoder A and Encoder B inputs 1) Parameter 1 : Input is inverted or not inverted 2) printf(">encswap 1₩r");
vel	3 ~ 40	-	Define the velocity 1) Parameter 1 : Velocity (unit : mm/s) 2) Printf(">vel 10₩r");

4-5. Control filters Commands

Command	Parameter1	Parameter2	Description
kp	0 ~ +32767	-	KP is the position loop gain. 1) Parameter 1 : Proportional position gain. 2) printf(">kp₩r");
ki	0 ~ +32767	-	KI is the velocity loop integral term gain. 1) Parameter 1 : Integral gain, in velocity loop. 2) printf(">ki₩r);
kd	0 ~ +32767		KD is the velocity loop overall gain multiplier 1) Parameter 1 : Derivative gain, in velocity loop. 2) printf(">kd₩r");
kf	0 ~ +32767	-	IIR filter 1) Parameter 1 : Specifies the parameter of position controller IIR filter. 2) printf(">kf₩r");

- ♣ **Under most circumstances, this commands is used only by the tuning environment.**
- ♣ **This commands is not supported by the standard firmware version of the controller.**
- ♣ **Please consult Piezoelectric Technology experts for more information.**

5. Contact Information

Contact your local distributor or Piezoelectric Technology Co., Ltd.

5-1. Head Office

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