

Command:PM

This is a Tiger only command , that has different usage for MicroMirrors and Piezos

MicroMirror

Shortcut	PM
Format	PM [axis]=[0 or 1] ...
Units	Integer code, 0-1
Type	Axis-Specific
Remembered	Using [addr#]SS Z
Firmware Required	v2.8+

This command is “recycled” for a different use in MicroMirror axes than for piezo. In the context of a MicroMirror axis this command is used to put the axis in internal or external mode.

1 is external input mode. Mirror is positioned based on analog input voltage. Default mode until v3.10, except for SPIM-enabled systems.

0 is internal input mode. Mirror can be positioned thru serial command or onboard routines. Default mode for SPIM-enabled systems and v3.10+.

Example

```
PM A=1 B=1
:A
```

Puts the axes in external input mode

```
PM A? B?
A=1 B=1 :A
```

Queries the mode of axes

Piezo

Shortcut	PM
Format	PM [axis]=[0 to 3,+,-]
Units	Integer code, 0 to 3 and + and - sign
Type	Axis-Specific
Remembered	Using [addr#]SS Z

PM command sets the ADEPT card in various modes, Open Loop, Closed loop, MS2000 input and External input.

PM [axis] =	Mode of Operation
0	TG-1000 input, Closed loop (default)
1	External input, Closed Loop
2	TG-1000 input, Open loop

PM [axis] =	Mode of Operation
3	External input, open loop
PM [axis]+	Fast Mode
PM [axis]-	Slow Mode

In Open Loop mode, a set voltage is applied to the piezo and the feedback from strain gauge is ignored. Useful during system calibration.

In Closed Loop mode, the voltage applied to the piezo is adjusted according to the feedback coming from the strain gauges. This is the default mode of operation.

TG-1000 input, in this mode the TG-1000 controller generates the positioning input for the piezo top-plate. This is the default mode of operation.

In External input mode, the piezo top-plate is positioned according to 0 to 10V analog signal provided by the user. Every one volt change moves the piezo 1/10 the range. We recommend that frequency of the signal be kept less than 10Hz for long moves, to give the piezo top-plate sufficient time to settle and come to a complete stop.

PM [axis]+ : Requires v3.10+ firmware and Rev M5 or later ADEPT card. Switches in a faster more responsive piezo position controller. However it is less stable and prone to oscillation. Suitable for 150um piezos.

PM [axis]- : Requires v3.10+ firmware and Rev M5 or later ADEPT card. Switches in a slower but more stable piezo position controller. Ideal for 300um or 500um piezos and when using heavier payload or samples.

The modes will revert back to default state, i.e. TG-1000 input with Closed Loop when system is powered off. Use the [#Addr]ss z [command](#) to save your preference.

The settings set with this command can also be done with PZ commands. One does not have an advantage over another; usage is left to user preference.

Tunable Lens

Shortcut	PM
Format	PM [axis]=[0 or 3] ...
Units	Integer code, 0-3
Type	Axis-Specific
Remembered	Using [addr#]SS Z
Firmware Required	v3.19+

This command is “recycled” for a different use in Tunable Lens axes than for piezo. In the context of a Tunable Lens axis this command is used to put the axis in internal or external mode, and also to enable or disable Temperature Compensation. Temperature compensation is only available when tunable lens is in TG-1000 input mode.

PM [axis] =	Mode of Operation
0	TG-1000 input, Temperature Compensation disabled (default)
1	External input, Temperature Compensation disabled
2	TG-1000 input, Temperature Compensation enabled

PM [axis] =	Mode of Operation
3	External input, Temperature Compensation disabled

Example

```
PM R=1 S=1
:A
```

Puts the axes in external input mode

```
PM R? S?
R=1 S=1 :A
```

Queries the mode of axes

TGGALVO / TGDAC4

Shortcut	PM
Format	PM [axis]=[0-7] ...
Units	Integer code, 0-7
Type	Axis-Specific
Remembered	Using [addr#]SS Z
Firmware Required	v3.2+

For TGGALVO card, the bits 0-2 of the specified code sets the output range (values 0-7 in decimal). Bits 3-7 are reserved for future use.

Code (Decimal)	Code (Binary)	Output range
0	000	0V to 2.048V
1	001	0V to 4.096V
2	000	0V to 10.24V
3	000	not supported
4	000	-1.024V to 1.024V
5	000	-2.048V to 2.048V
6	000	-5.128V to 5.128V
7	000	-10.24V to 10.24V

Example

```
PM A=2 B=7
:A
```

Puts the output A in 0-10V mode and output B in +/- 10V mode.

```
PM A? B?
A=2 B=7 :A
```

Queries the mode of axes

[commands](#), [tiger](#), [piezo](#), [micromirror](#), [tlens](#)

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