

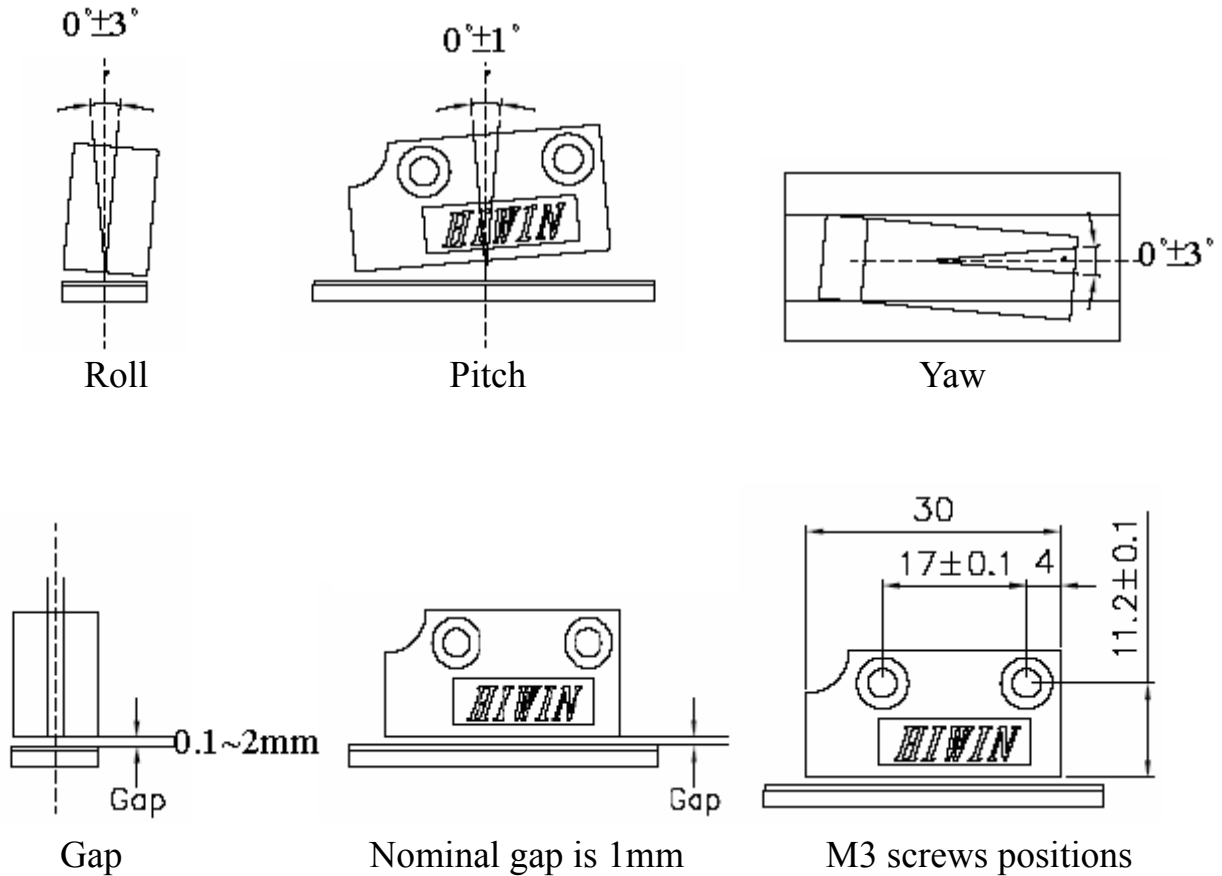
# PMMLD User's Manual

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## 1. Installation

1. At installation, the position of read-head is important.



## ☆☆2. Gap Tuning: (Warning)

In order to guarantee the Accuracy, the Gap Tuning refers to P.15 must be done , after the machine new installment or read head to have the again disassembly movement.

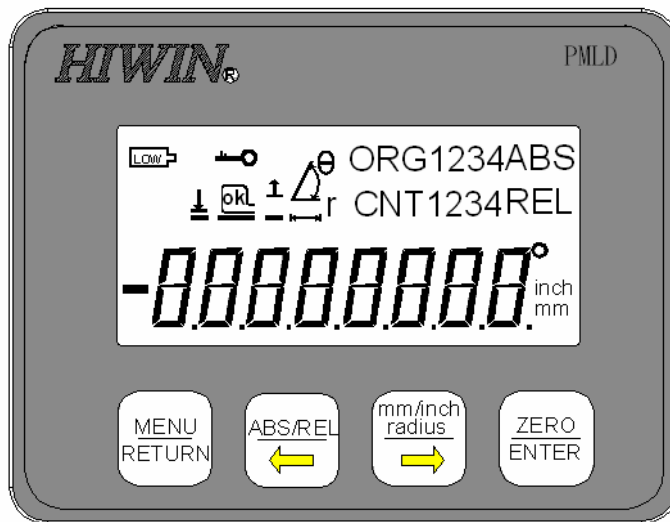
## 2. Functions

- (1).Switching between ABS and REL. See appendix.
- (2).Units of measurement: mm/inch/deg
- (3).Base point (Origin) coordinate setting  
(Setting of the coordinate where it stops at the moment.)
- (4).Counting direction setting (increase/decrease)
- (5).Resolution setting (decimal point setting)  
mm=(0.005, 0.01, 0.1, 1); inch=(0.0001, 0.001, 0.01, 0.1);  
deg=(0.001, 0.01, 0.1, 1)
- (6). 5 sets of offset settings. See appendix.
- (7). Programmable scaling factor.
- (8). Diameter setting for arc measurement. (The smallest radius is 50mm.)
- (9). Gap adjustment assistant (For better installation.)
- (10).Rated velocity setting (Maximum speed)
- (11).Battery condition display
- (12).Key lock

## Specifications

- ◎LCD 8 digits display
- ◎Use two 1.5 V AA Type battery(No. 3 battery)
- ◎Max. gap between read head and tape 2.0mm
- ◎Operation: 4 keys
- ◎Temperature for stocking : -5~+65°C
- ◎Operation temperature: 0~+50°C
- ◎Battery life circa one year (Assumed speed is set to 1.5 m/sec or below)

### 3. LCD display panel



**ORG1234** : 5 sets of ABS counter  
-see appendix

**CNT1234** : 5 sets of REL counter  
-see appendix

**°** : degree

**mm** : mm

**inch** : inch

**△°** : Radius setting

**↔r** : Radius value

**🔑** : Key locked

**⬇ ⬆** : bad flatness

**⬇** : gap too big

**⬆** : gap too short

**🔄** : blinking (gap not adjusted)

**OK** : gap is proper

**ABS** : ABS mode

**REL** : REL (INC) mode

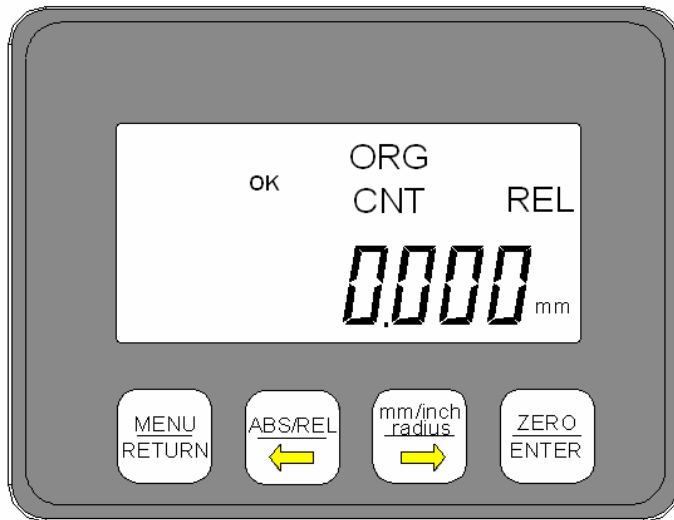
**LOW** : Battery low

**-** : minus

**NO SEN** : read head is away from tape

#### 4. Key operations

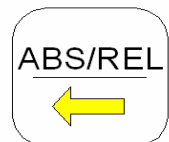
##### ◎ Normal mode



The meaning of key at the Normal mode:



: Menu



: Switching between ABS/REL mode



: Switching between units (mm/inch/degree)



: Set to zero (only for REL mode)



+



: Lock and unlock the key



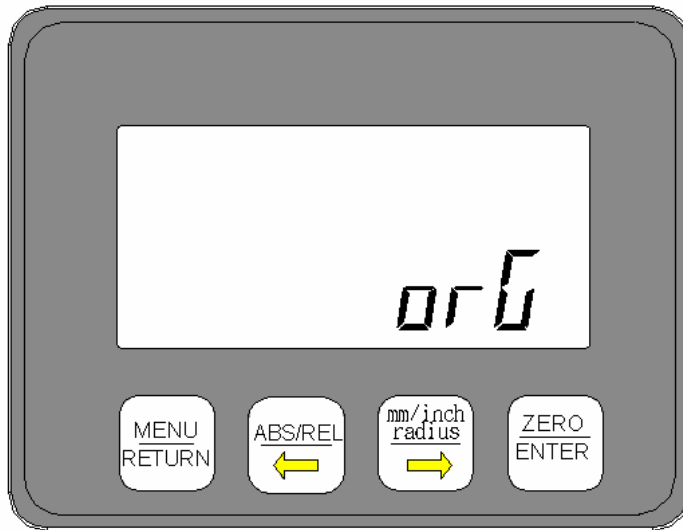
+




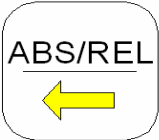


ABS mode: switching ORG  
REL mode: switching CNT

## 5. Function Mode

At normal mode, press MENU to enter function mode.

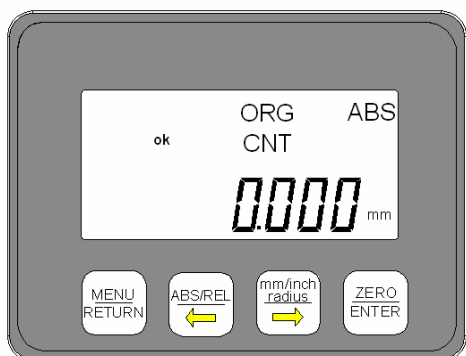


The meaning of key at the Function mode:

- |   |  |
|---|--|
|   | : Return to normal mode/Back one page  |
|  | : Switching between functions<br>Org>Dir>Dot>Offset>Scale>Rad>Tune>Speed>Bat>Edit>Org  |
|  | : Switching between functions<br>Org>Edit>Bat>Speed>Tune>Rad>Scale>Offset>Dot> Dir>Org |
|  | : Confirmation key   |

## 6. Base point (origin) setting (Org)

Function: This is to set the origin coordinate. (It sets the coordinate where it stops at the moment.) User can set the value according to need. It can be zero or non-zero. If it is zero, it is origin. This is only for ABS mode.

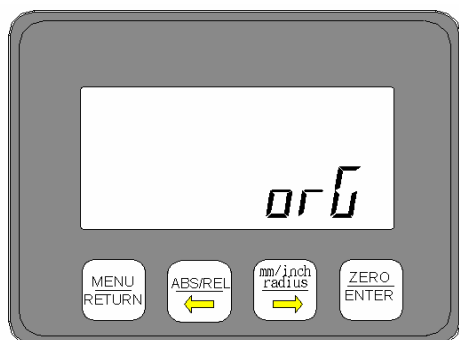


Step 1. If not in ABS mode, press



to

switch into ABS mode.



Step 2. Press



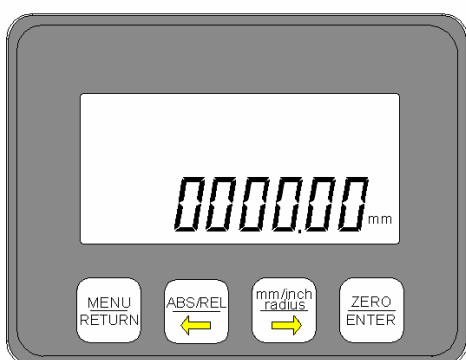
once, then press



or



until it shows Org.

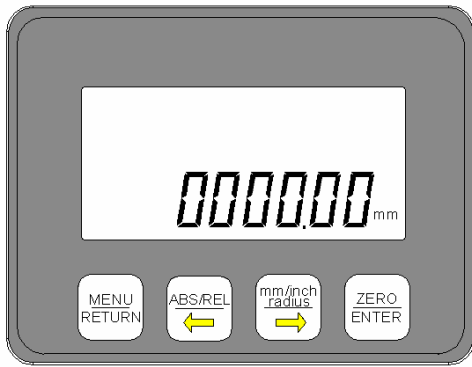




Step 3. Press







to enter setting.





Step 4. Press  to set the sign. Press  to set the unit.

Then press

 or  to switch between digits to change and the digits will blink. Press  or  to change value (0-9).

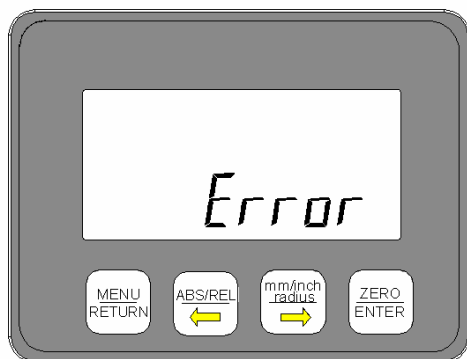
After change is done, press  to confirm.

The display will show the newly set value

Note: The setting range is  $-360^{\circ} \sim +360^{\circ}$  at the angle mode.

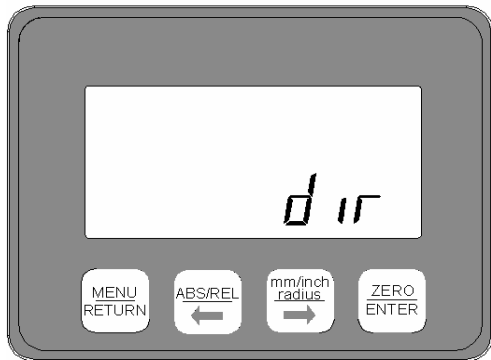
Note: PMLD has 5 sets of independent offsets, be make sure the offset value corresponding to the set is 0, or the PMLD adds the according offset to origin coordinate and shows it.




Note: If parameter is over the setting range, it will shows an "Error".

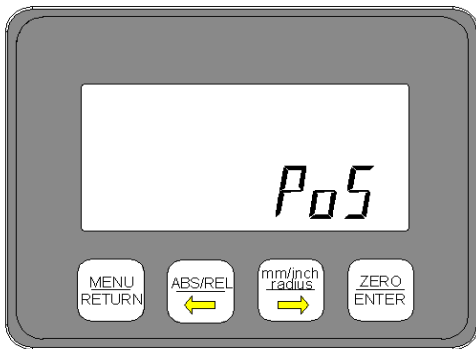






## 7. Counting direction (Dir) :

Function: It is possible to set the direction for incremental signal.



Step1. Press , then press  or  to enter setting.

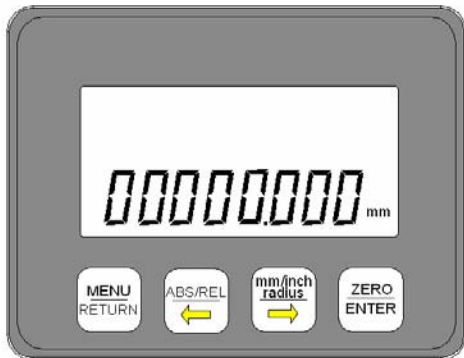



Step2. Press  to enter setting, than  
Press  or  to choose  
counting direction (positive or negative),  
than press 

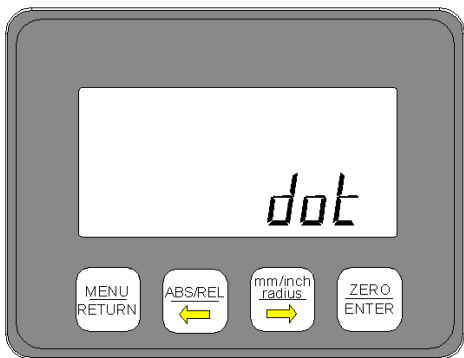
## 8. Resolution setting (Dot)




Function: It is possible to set the resolution according to user's requirement.

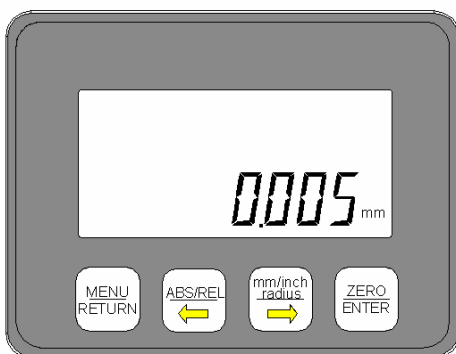
1. For mm, possible choices are 0.005, 0.01, 0.1, 1mm.
2. For inch, possible choices are 0.0001, 0.001, 0.01, 0.1 inch.
3. For degree, possible choices are 0.001, 0.01, 0.1, 1 degree.






Step 1. Press  to choose the unit needed.



Step 2. Press  once, and press  or  until it shows Dot.





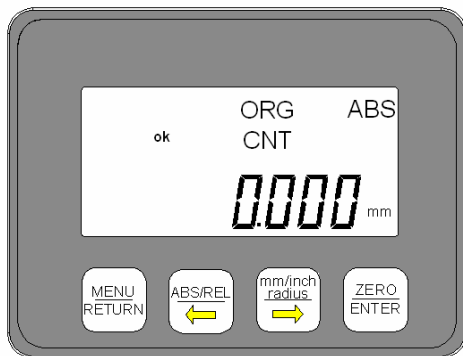
Step 3. Press  to enter setting. Press  to choose the resolution needed. Finally, press  to confirm.

## 9. Offset setting(offset) :

Function: It is possible to set different offsets. It is only for ABS mode.


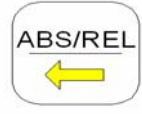

( PMLD has 5 sets of independent offsets. Offset provides user to switch between different translational coordinates. When using offset, the PMLD adds the according offset and shows it. So the user does not need calculator. After setting, press

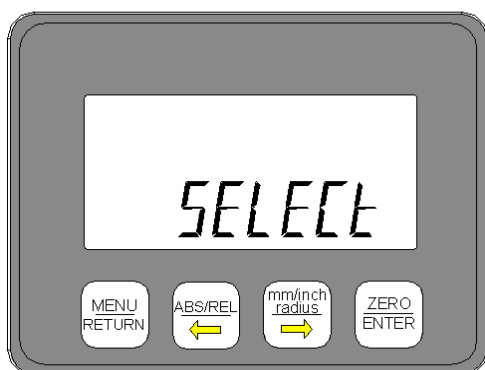
 +  to use it. Refer to section 3. (Normal mode explanation)






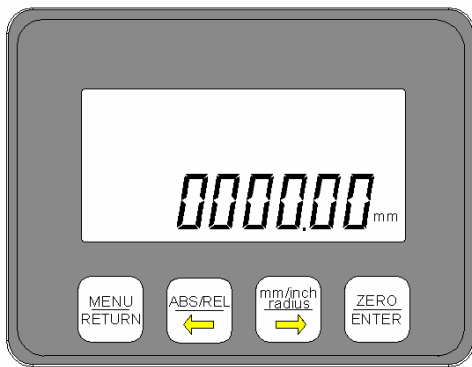
Step 1. Press  to choose ABS mode.







Step 2. Press  once, then press   
or  until it shows Offset



Step 3. Press  or  to select  
Which offset to set. After selection press 

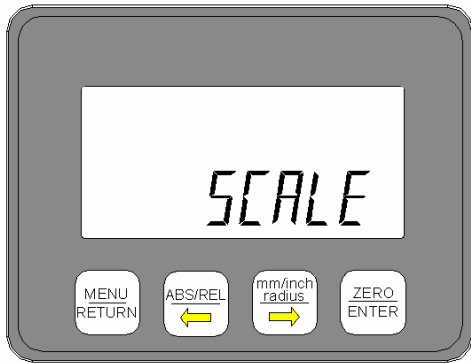






Step 4. Press  to set the sign. Then  
 press  to switch to next digit.  
 the digit will blink.  
 Press  to change the value,  
 Press  to confirm.

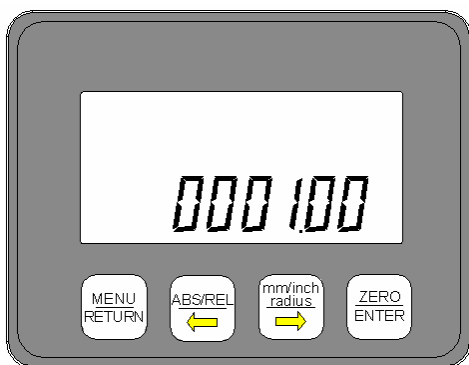
Note: The setting range is  $-360^{\circ} \sim +360^{\circ}$  at the angle mode.




## 10. Scale (Scale) :

Function: It is possible to set to a different scale for coordinate display.



Step 1. Press  once, and press   
or  until it shows Scale.  
then press  to enter setting.



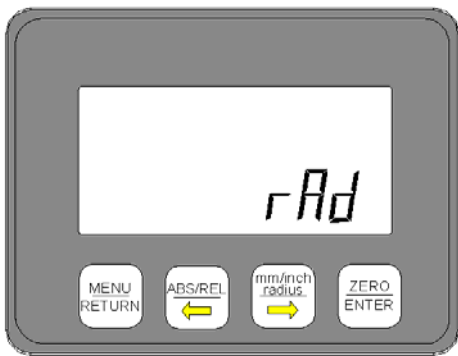
Step 2. Press  to change the blinking digit.  
Press  to change to next digit.  
Press  to change the value.





Finally press  to confirm.

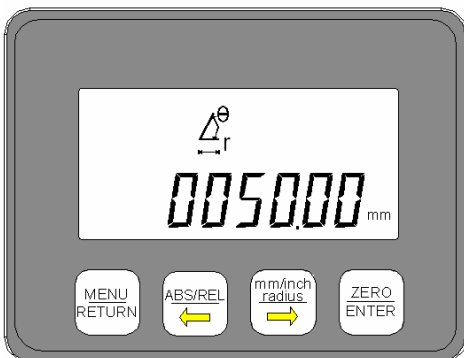
Range: 0.01~1000.00(Not including 0)


## 11. Radius setting (Rad) :



Function: When the magnetic tape is mounted on a round surface, setting the radius value makes it possible to show the correct angle.




Step 1. Press  once, and press  or  until it shows Rad. Then press  to set.



Step 2. The symbol  means radius.

Press  to change the value, and press  change to next number.

The number will be flash. Then press 

to change the value. The unit is only in mm.

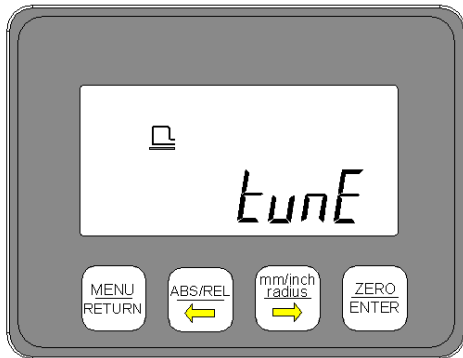
When finished setting the parameter, press





the  key.

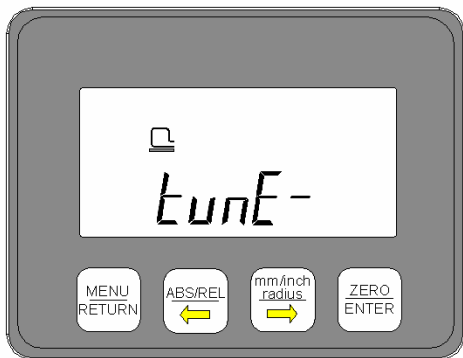
Value : 50~5000mm.

## 12. Gap Tuning(Tune) :

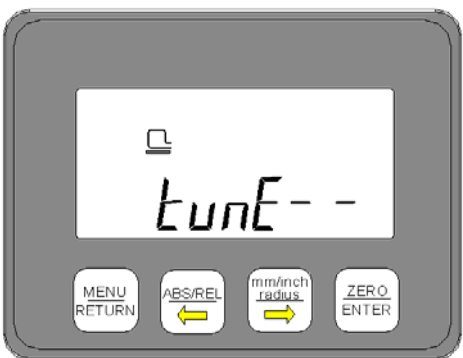
Function: Assists the user to check distance between read head and magnetic tape installs whether suitably, as well as the revision feeling did measure the signal may increase the system accuracy, after the machine new installment or read head to have the again disassembly movement, best recreates an adjustment



Step1. Press  , and next press  or  to select tune.  
Press to  setting the value °



Step2. The panel display “Tune-“ is for detecting. Move the read head slowly. The shift should be over 30mm in 10 second.



Step3. The panel display ”Tune --“will follow closely. The display goes back to normal mode when detect finished and will show if the gap is too big, too small or ok. The message knows the gap between read head and magnetic tape.

※ This movement must be complete in 30 seconds, if 30 seconds passes without completing the system tune, the automatic rebound general pattern reduces the power

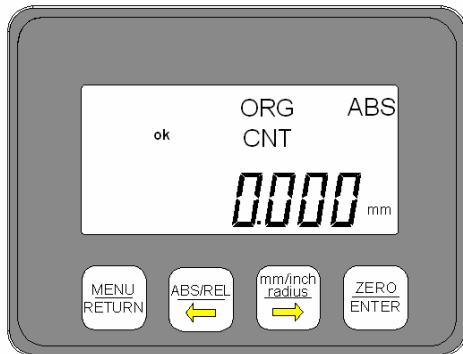
consumption. This time the picture indicates  span adjustment not yet completes.

Note: After completing the span adjustment movement, you must establish the reference point.



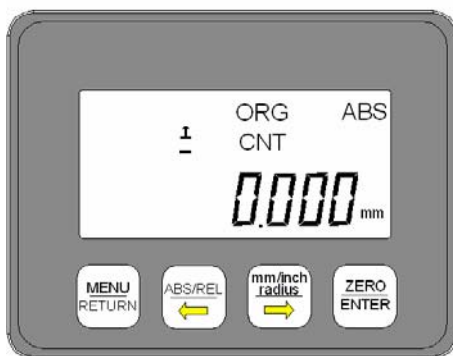
## Tuning Result :

(a) Gap status : OK



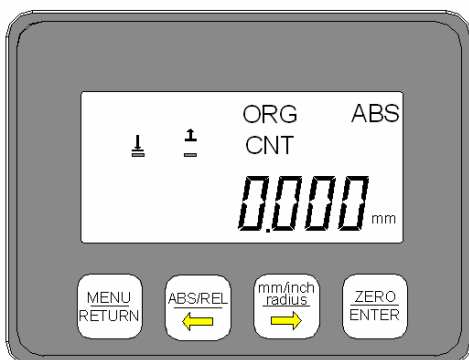
If the detection result picture demonstrates OK, indicated reads and the magnetic tape spacing is moderate.

(b) Gap small :  $\overset{\uparrow}{\perp}$



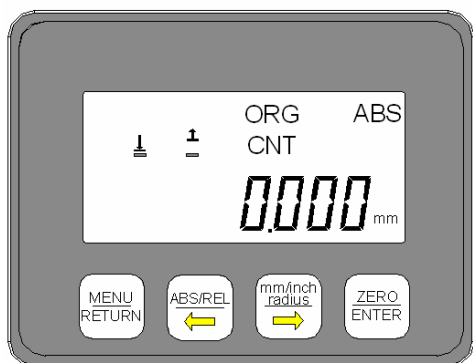
If the detection result picture  $\overset{\uparrow}{\perp}$  is demonstrated, indicated reads and the magnetic tape spacing smaller. After the adjustment reads and the magnetic tape spacing, you must recreate Tune the movement.

(c) Gap large :  $\overset{\downarrow}{\perp}$



If the detection result picture  $\overset{\downarrow}{\perp}$  is demonstrated, indicated reads and the magnetic tape spacing is oversized. After the adjustment reads and the magnetic tape spacing, you must recreate Tune the movement.

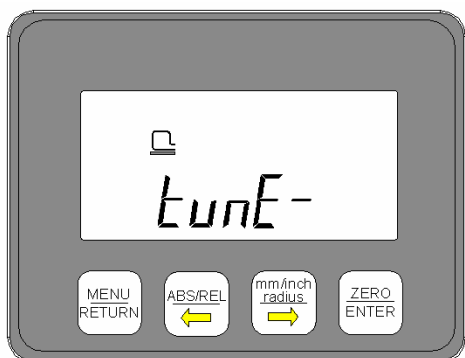
(d) Flatness unstable :  $\downarrow$   $\uparrow$




If detection result picture  $\downarrow$   $\uparrow$  is shown, the mechanical flatness is not smooth, improve the mechanical flatness, you must recreate Tune the movement

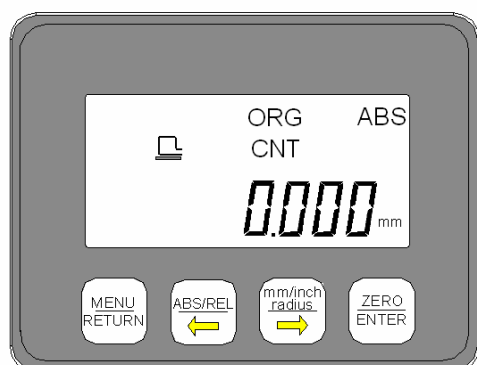
Trouble shooting :


### (a) Turning Trouble




If the picture show “Tune- or Tune--“ for too long, the Gap may be too high or the signal of the read

head is unstable. Please press  to finish the work.

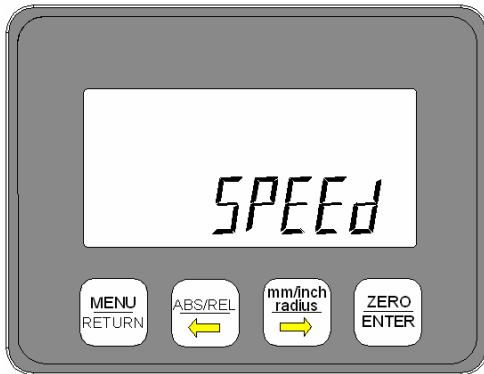






This time the picture is  Indicates the span adjustment is not yet complete. After reducing reads a spacing, recreate the Tune movement, if it still has not been improved, please inspect whether the signal reads normal.

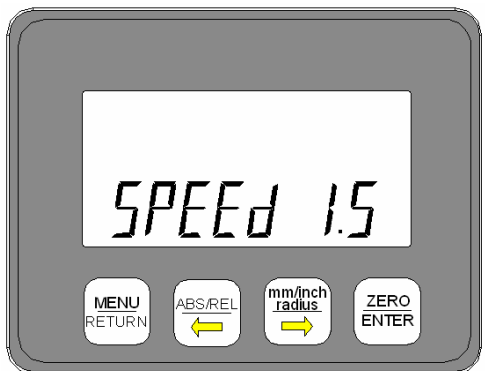
- ※ After completing the Tune movement, the system can remember automatically , this signal revision related parameter.If this period has the replacement battery after starting, picture  may appear, although not affecting the system precision. It is suggested to make time for the Tune the movement.




### 13.Read Head (Speed) :

Function: According to the reads traveling speed demand, chooses the limiting value above the traveling speed.



Step1. Press  once, and press  or  to select the picture "Speed" then press  to set.

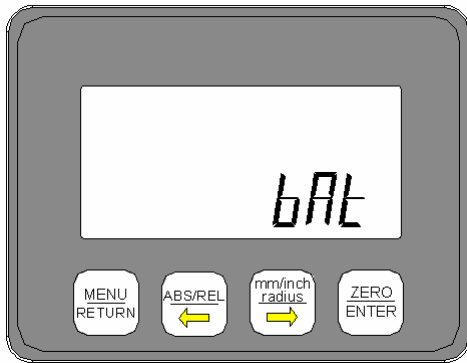






Setp2. Press the  or  key.  
you can select the speed limit for read head moving speed.1.0m/sec,1.5m/sec,2.0m/sec,2.5m/sec,3.0m/sec .  
Press  after setting

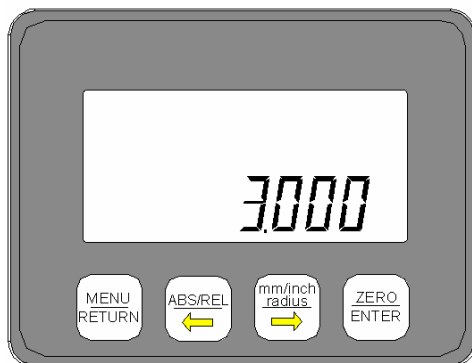
※Because the traveling speed upper limit is bigger, the power consumption is bigger, thus lowering the battery service life. Lowering the limiting value lengthens the battery service life.

## 14. Battery capacity(Bat) :


Function : Battery capacity detection




Step1. Press  once, and press   
or  to select the picture Bat.  
Press  to enter the function.



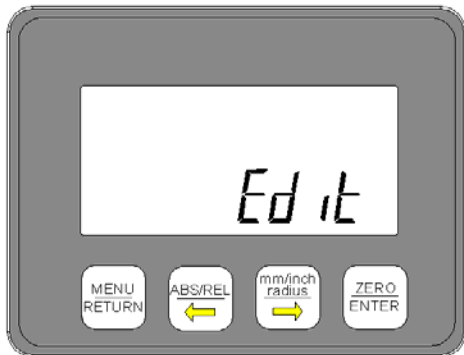
Step2. The picture will display the value of battery.





Press  key to go back to normal mode .

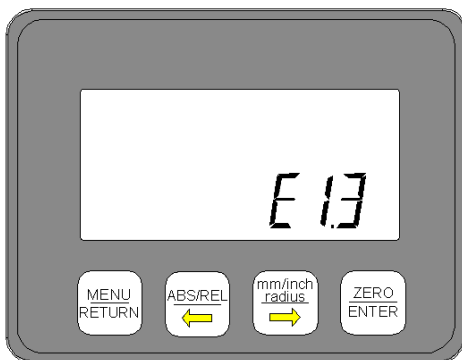
※ If the value of the battery is under 2, the display will show the picture . Please change the battery.


## 15. Software Version(Edit) :

Function: The software version of system



Step1. Press  once, and press   
or  until it shows “Edit”.  
press  to enter the function.

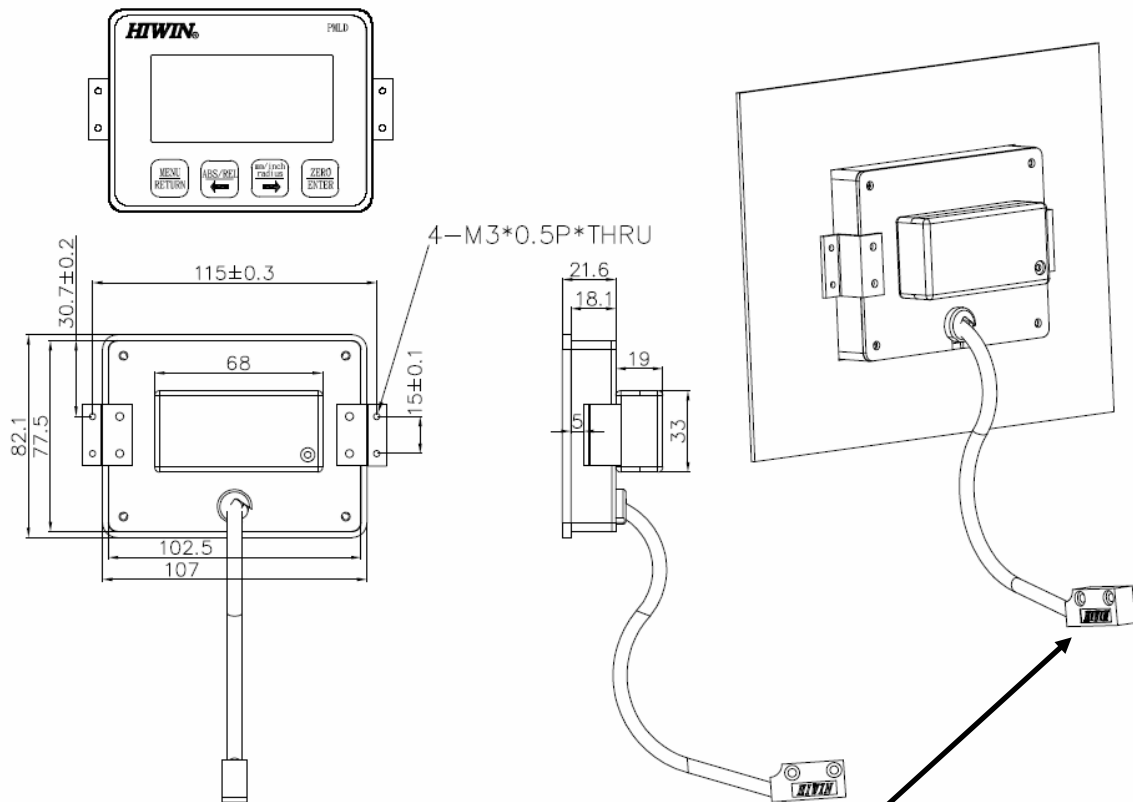


Step2. The panel will show current software version.  
Press  once, and back normal mode.

## 16.Parameter default :

Function	Description	Default
Dot	Resolution	(1).0.005mm (2).0.0001inch (3).0.001
Dir	Direction	Pos
Org	Origin	0
Offset	Origin offset	0
Scale	Scale	1.00
Rad	Radius	50mm
Speed	Speed limit	1.5 m/sec

## 17.Dimension:



By customer to order the sensor head:



















PM-A-□□-□A-E-00

PM-A-□□-□A -I-00



















PM-B-□□-□A -□-00(development)

## 18.Appendix :

(1).Panel display and function antithesis:

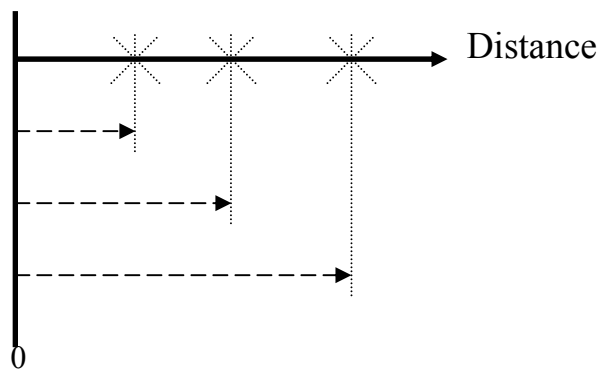
name	LCD display	name	LCD display	name	LCD display
0		1		2	
name	LCD display	name	LCD display	name	LCD display
3		4		5	
name	LCD display	name	LCD display	name	LCD display
6		7		8	
name	LCD display	name	LCD display	name	LCD display
9		A		B	
name	LCD display	name	LCD display	name	LCD display
C		D		E	
name	LCD display	name	LCD display	name	LCD display
F		G		H	



name	LCD display	name	LCD display	name	LCD display
I		J		K	
name	LCD display	name	LCD display	name	LCD display
L		M		N	
name	LCD display	name	LCD display	name	LCD display
O		P		Q	
name	LCD display	name	LCD display	name	LCD display
R		X		T	
name	LCD display	name	LCD display	name	LCD display
U		V		W	
name	LCD display	name	LCD display	name	LCD display
X		Y		Z	

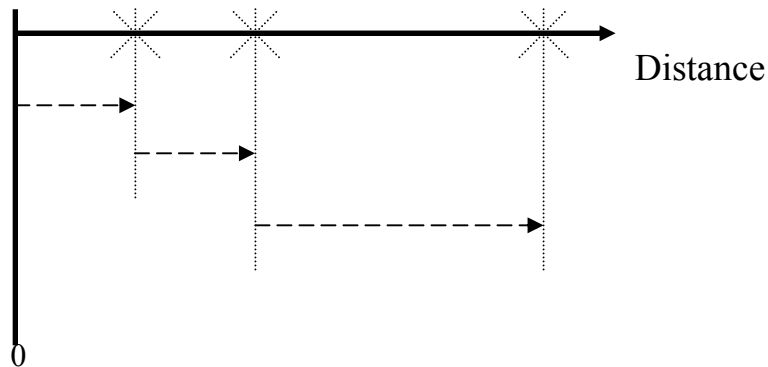
## (2).Technical description :

### (a).Absolution mode:



The same origin, you can not change the origin position.

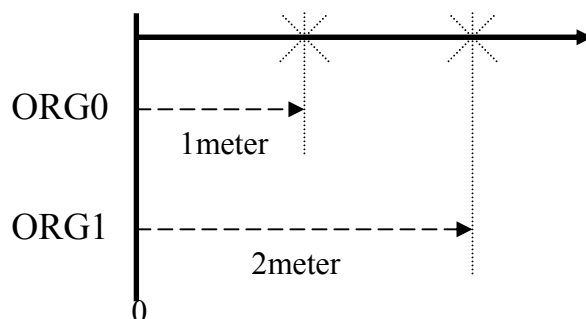
### (b).Relation mode:



You can change any origin by your demand.

### (c).ORG (ORG0 、ORG1 、ORG2 、ORG3 、ORG4) description:

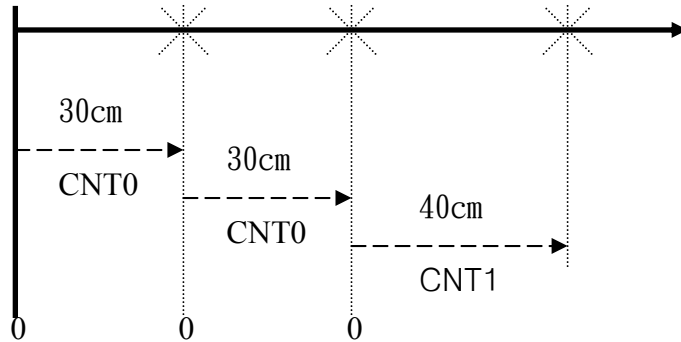
In the woodworking machine application, it does not cuts the same length by user discretion. (Example: 1 meter and 2 meters, following under description)



The user only changes the setting of the origin. (You need 1 meter that sets ORG0 for 1 meter origin, and for 2 meters, set ORG1 for 2 meter origin.)  
This function can increase the efficiency in measurement above 2 sizes.

(d).CNT(CNT0、CNT1、CNT2、CNT3、CNT4)description:

In the woodworking machine application, it cuts not the same length on same wood.  
(Example: 30 centimeters and 40 centimeters, following under description)



The user only changes the CNT setting. User can direct the read out the position and cuts the wood. They don't need to set the parameter once again.

(e).Origin compensation:

You can not change the position of origin in absolute mode. If you need to change the position of origin, you must use the origin compensation to offset the position of origin.

**(3). PMLD User's Manual Version:**

Please carefully read the user's manual before using this product. We don't take responsibility for any damage possibly caused by those who didn't follow these notes to install. This PMLD User's Manual Version is VER 1.1 .