


5.1 Setting EDM Parameters

The following parameters must be set before EDM is done:

- A depth of machining(EDM DEEP)
- B fireproof height(EDM HOME)
- C electrode compensation(EDM.COMP if DEEP COMP is active)
- D EDM mode(EDM MODE)
- E Relay mode(RELAY MODE)
- F Disable/Enable electrode compensation (DEEP.COMP)

A,B,C can be set by pressing  in normal display state; D,E,F can be set in initial system settings, and they are modified rarely. If the DEEP.COM is set as "0", electrode compensation is not taken into consideration; If it is set as "1", the value of electrode compensation can be set in parameter setting, and electrode compensation should be taken into consideration during machining.

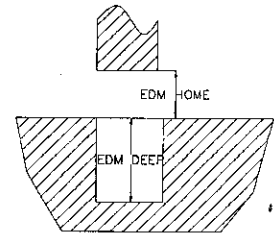



Fig.4 : EDM.DEEP

Example:

EDM deepth (EDM DEEP)	156.1mm
Fireproof height (EDM HOME)	3.0mm
Electrode compensation (EDM.COMP)	0.1mm

STEPS:

- 1: Set EDM COMP as "1" in initial system settings to enable electrode compensation;
- 2: Return normal display state, then set display unit is to metric ;
- 3: Input EDM parameters

press , the Y window displays the former depth;

ⓧ EDM DEEP
 Ⓨ 50000 the formerly
 Ⓩ presetted EDM
 depth

Input depth by pressing 1 5 6 . 1
 ENTER in turn;

ⓧ EDM DEEP
 Ⓨ 156.1
 Ⓩ

- 4: The Y window displays the former fireproof height;

Input the fireproof height
 pressing 3 ENTER;


ⓧ EDM HOME
 Ⓨ 6000 the formerly preset
 fireproof height
 Ⓩ

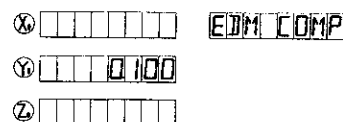
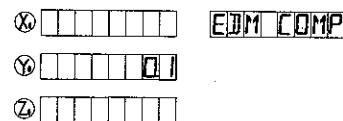
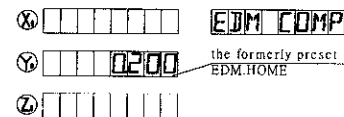
ⓧ EDM HOME
 Ⓨ 3
 Ⓩ

- 5: The Y window displays the value of former electrode compensation ;


Input the new value

pressing in turn;

- 6: Press  to return normal display state .



5.2 EDM machining

Return normal display state ,then press  to start machining after all EDM parameters have been set. WE6800E provides 6 EDM modes to deal with different requirements.

5.2.1 Example for Mode 1 with Plus Depth

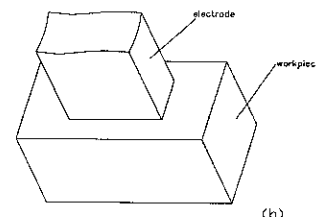
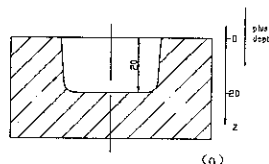
Process a workpiece as figure (a), Z axis positive direction is down, parameters are as following:

EDM DEEP 20 mm
EDM HOME 5mm;
EDM COMP 0.1 mm;

STEPS:

- 1: Set the following parameters in initial system settings:

- EDM MODE is set as 0;
- RELY.MODE is set as 0;
- DEEP.COMP is set as 1 ,
which means the DEEP.COMP is active ;



- 2: Return normal display state with the following settings:


- Display unit is metric;
- Shrinkage is not taken into consideration;




- 3: Set parameters in EDM function;

- EDM.DEEP 20mm
- EDM.HOME 5mm

➤ EDM.COMP 0.1mm;

4: Move the electrode until it touches the machining plane ,as figure(b).

Press  to zero z axis display value;

X  20.100 EDM RUN
Y  0000 start machining
Z  0000

5: Starting machining

press ,



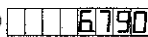
X window displays the

expectant=EDM.DEEP+EDM.COMP,


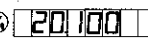

Y window displays the current machined depth,

Z window displays the current position of electrode,




Message window displays "EDM RUN";

X  20.100 EDM RUN
Y  8.120 in machining
Z  6.790

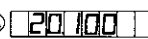
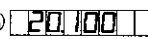

6: When Z window displays value = EDM.DEEP + EDM.COMP= 20.1 , the buzzer will sound and message window will display "BACKWARD",then the machining stops and the electrode withdraws.

X  20.100 EDM RUN
Y  20.100 end machining
Z  20.100


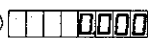

The actual machined depth is 20mm when Z window displays value = EDM.DEEP + EDM.COMP = 20.1 because of electrode wear.


X  20.100 BACKWARD
Y  20.100 electrode begin withdrawing
Z  20.100


During electrode withdrawing , Z window displays the current position of electrode , X window displays the preset value(EDM.DEEP + EDM.COMP), Y window displays the formerly preset depth;





X  20.100 BACKWARD
Y  20.100 electrode in withdrawing
Z  12345

The DRO will quit EDM and return normal display state when the electrode withdraws higher than the fireproof height; The DRO will exit EDM automatically if the electrode doesn't withdraw in 25 seconds.

X  0000 SIM 000
Y  0000
Z  5000

The LED of  will flash if EDM.COMP is active during machining;

Pressing  can exit EDM in the course of EDM machining;

Note: In the course of EDM, by pressing  or , the operator can temporarily quit EDM function and return normal display state in order to watch the position of X,Y,Z axis. Press  or  again to return EDM function.

5.2.2 Example for Mode 1 with Minus Depth

Machine the workpiece as the figure (c), Z axis positive direction is down,

parameters as following :

EDM.DEEP -20 mm;
EDM.HOME 55mm;


STEPS:

- 1: Set the following parameters in initial system settings:
 - EDM MODE is 0;
 - RELY.MODE is 0;
 - DEEP.COMP is 0 , electrode compensation is disenabled ;
- 2: Return normal display state with the following settings:
 - Display unit is metric;
 - Shrinkage is not taken into consideration;
- 3: Set the parameters in EDM function;
 - EDM.DEEP -20mm
 - EDM.HOME 55mm
- 4: Move the electrode until it touches the machining plane as figure(d),

Press $\textcircled{Z_0}$ to zero z axis;

Move the electrode to the position as figure (e)

5: Starting EDM

Press ,

X window displays the expectant = EDM.DEEP + EDM.COMP,

Y window displays the current machined depth,

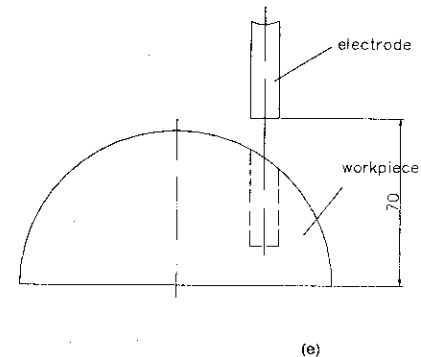
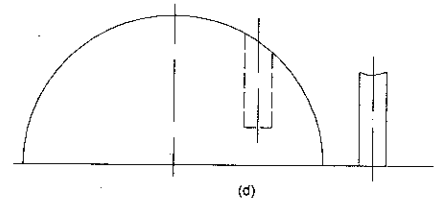
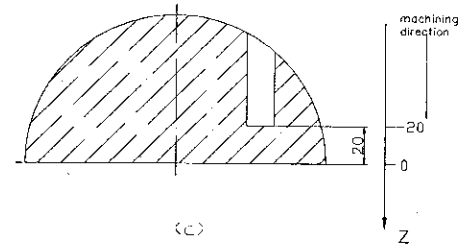
Z window displays the current position of the electrode,

Message window displays "EDM RUN";

- 6: When Z axis displays the value = EDM.DEEP = -20.000,

the buzzer sounds, message window displays "BACKWARD"

.Then the machining stops and the electrode withdraws;



ⓧ -200000 EDM RUN
Ⓨ -700000 start machine
Ⓩ - 700000



ⓧ -200000 EDM RUN
Ⓨ -300000
Ⓩ - 134560 in processing



ⓧ -200000 EDM RUN
Ⓨ -200000 EDM end
Ⓩ - 200000



During withdrawing the electrode Z window displays

the current position of the electrode ,X window displays the presetted EDM.deepest,Y window displays the machined depth;

ⓧ -20000 ⓧ BACKWARD
 Ⓨ -20000 Ⓨ electrode begin withdrawing
 Ⓩ - 20000 Ⓩ




The DRO will exit the EDM function and return normal display state if the electrode doesn't withdraw in 25 seconds:

ⓧ -20000 ⓧ BACKWARD
 Ⓨ -20000 Ⓨ electrode in withdrawing
 Ⓩ - 30000 Ⓩ





The DRO will quit the EDM function when the electrode beyond the fireproof height (EDM.HOME).

Press  to exit the EDM function during machining ;

ⓧ 0000 ⓧ SIM 000
 Ⓨ 0000 Ⓨ
 Ⓩ - 70000 Ⓩ

5.2.3 Example for Mode 2

DRO must be connected with the edge detector sensor. Press  to enter EDM,Z axis is zeroed automatically and machining begins when the electrode touches the machining plane. As soon as process to the expected depth, the relay sends out a signal to withdraw the electrode and stop EDM machining. When the electrode beyonds fireproof height,move the machine table to next hole to machine another hole without pressing . Mode 2 can process multiple holes conveniently.

Conditions for MODE 2:

- The DRO must be connected with sensor which can detect edge and zero Z axis display value automatically;
- The DRO doesn't exit EDM to machine next hole
- EDM.DEEP can't be minus;
- Z axis positive direction and machining direction is down;
- The electrode wear is very small and negligible;

Process six holes in one workpiece as figure (f) Z axis direction is down.

Parameters are as following :

A EDM.DEEP 20.1 mm


B EDM.HOME 5mm;

Take the mode of detecting and zeroing Z axis automatically.

If the electrode doesn't exit in 25 seconds, the DRO will enter the steps to machine another hole by repeating steps 5-7.


ⓧ 20.100 SCH 80
 ⓧ 20.100
 Ⓩ - 7560

If the electrode beyonds the fireproof height (EDM. HOME), the DRO will enter the steps to process another hole by repeating steps 5—7.

Press  to exit EDM when machining completes.

ⓧ 0000 EDM 000
 ⓧ 0000
 Ⓩ 5000

Press  to exit EDM during machining.

Note: The LED for  flashes during machining if DEEP.COMP is enabled.

5.2.4 Example for Mode 3

Compared with Mode 1, mode 3 hasn't the function of fireproof height. DRO can exit EDM only when the electrode goes down again. The datum will not change because z axis is not zeroed again to machine next hole. This mode is only used in the case if the electrode wear is too small to be neglected.

Process the workpiece as figure (F) in 5.2.3, Z axis direction is down;

EDM.DEEP 20.100mm

STEPS:


- 1: Set the following parameters in initial system settings;
 - EDM MODE is set 2;
 - RELY.MODE is set 0;
 - DEEP.COMP is set 0, depth compensation is disabled;
- 2: Return normal display state with the following setting;
 - Display unit is metric;
 - Shrinkage is not taken into consideration
- 3: Set parameters in EDM ;

EDM.DEEP 20.100mm
- 4: Move the electrode until it touches the machining plane as the figure (b),

press Ⓩ to zero z axis;

ⓧ 20.100 EDM RUN
 ⓧ 0000 start machining
 Ⓩ 0000

- 5: Start EDM

Press ,

X window displays the expectant =

EDM.DEEP=20.100,

Y window displays the current machined depth,

Z window displays the current position of electrode,

Message window displays "EDM RUN";

ⓧ 20.100 EDM RUN
Ⓨ 8.120 in machining
Ⓩ 6.790



ⓧ 20.100 EDM RUN
Ⓨ 20.100 EDM end
Ⓩ 20.100






ⓧ 20.100 BACKWARD
Ⓨ 20.100 electrode begin withdrawing
Ⓩ 20.100



ⓧ 20.100 BACKWARD
Ⓨ 20.100 electrode in withdrawing
Ⓩ 12.345

During the electrode withdrawing, Z window displays the current position of electrode, X window displays the preset EDM.DEEP, Y window displays the former machined depth.

Press  to process next hole by repeating the steps 5—6 if the electrode withdraws above datum.

7: Machining is finished, then electrode goes back to a certain height, press , MM axis display "EDM RUN", press , exit EDM.

ⓧ 0000 EDM 000
Ⓨ 0000
Ⓩ 5000

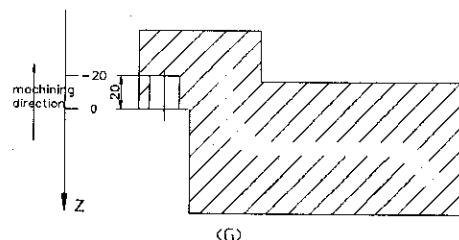
5.2.5 Example for Mode 4 with Minus Depth

MODE 4 has the same steps as MODE 0, and MODE 5 has the same steps as MODE 3. The difference between mode 4 and mode 1, mode 5 and mode 3 is the machining direction when the EDM.DEEP is minus. These differences are shown at table (1)

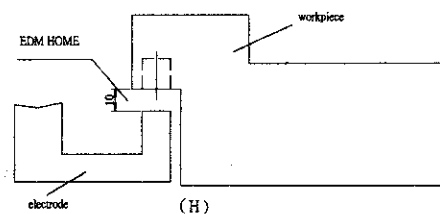
Machine a workpiece as figure (G)

STEPS:

- 1: Set the following parameters in initial system settings;
 - EDM MODE is set as 3;



- RELY.MODE is set as 0;
- DEEP.COMP is set as 0, which means DEEP.COMP is disabled;



2: Return the normal display state with the following setting;

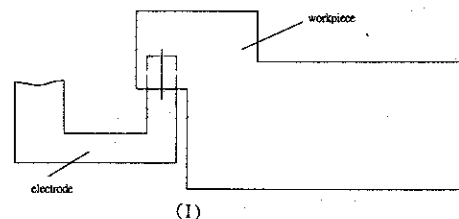
- Display unit is metric;
- Shrinkage is not taken into consideration

3: Set the following parameters in EDM function;

- EDM.DEEP -20mm
- EDM.HOME 10mm

Height of withdrawing is defined as the figure

(H) DRO will exit EDM if electrode is below EDM HOME.



4: Move the electrode until it touches the machining plane as figure (I) :

Press Z_0 to zeroing Z axis;

5: Start EDM

Press , then

X window displays the expectant = EDM. DEEP + EDM.COMP,

Y window displays the current machined depth,

Z-window displays the current position of electrode Message

window displays "EDM RUN";

X -20000 EDM RUN
Y 0000 start machining
Z 00000

6: When the Z window displays the value = EDM.DEEP = -20.000, the buzzer sounds and the message window displays "BACKWARD". Then the machining stops and the electrode withdraws.

X -20000 EDM RUN
Y -10000 in machining
Z -004560

X -20000 EDM RUN
Y -20000 EDM end
Z -0020000


X -20000 BACKWARD
Y -20000 electrode begin going back
Z -0020000

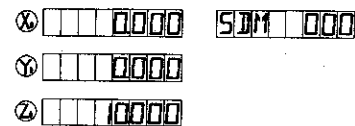
During withdrawing electrode,
Z window displays the current position of electrode,
X window displays the preset EDM.DEEP,
Y window displays the former machined depth;

X -20000 BACKWARD
Y -20000 in withdrawing
Z -0010000

The DRO will quit EDM and return normal display state automatically if the electrode doesn't exit in 25 seconds.

The DRO will quit EDM function and return normal display state when the electrode withdraw exceeds the height of the withdrawing.

Press  to quit during the machining;




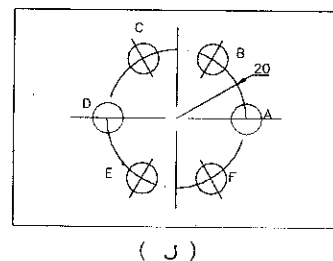
Note:


Mode 5 and mode 4 is same if depth is minus. The step of mode 5 is same with mode 2.

5.2.6 Example for Mode 6

The operate step and machined workpiece of MODE 6 is same as MODE 2. The difference of them is Z axis positive direction: In MODE 2, the Z axis' positive direction is down, EDM.DEEP is plus when machining down; In MODE 6, the z axis' positive direction is up, EDM.DEEP is minus when machining down.

The DRO must be connected with the sensor that can detect edge and zero Z axis' display value automatically. Press  to enter EDM function, Z axis' display value is zeroed and begin machining when the electrode touches the machining plane. when display Z axis' display value equals to or greater than the expected depth, the relay sends out a signal to withdrawing the electrode; If the electrode beyonds the fireproof



height, move the machine table to next hole to machining another hole without pressing . Mode 6 can process multiple holes quickly.

Running conditions for MODE 6:

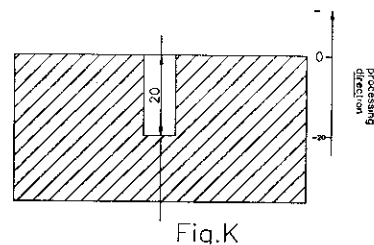
- The DRO must be connected with the sensor which can detect edge
- The DRO doesn't exit EDM after one hole is machined;
- EDM.DEEP can't be plus;
- Z axis direction is up and machining direction is down;
- The electrode wear is very small and can be neglected;

Process six holes in one workpiece as figure (j), Z axis direction is up; Parameters are as following:

EDM.DEEP 20 mm
EDM.HOME 5mm;

STEPS:

- 1: Set the following parameters in initial system settings;
 - EDM MODE is set 5;
 - RELY.MODE is set 0;
 - DEEP.COMP is set 0, depth compensation is disenabled;
- 2: Return normal display state with the following setting;
 - The display unit is metric,
 - Shrinkage is not taken into consideration
- 3: Set the parameters in EDM function



- EDM.DEEP 20.000mm
- EDM.COMP 5mm

4: Press ,

5: The DRO displays as the right:

Move the electrode until it touches the machining plane as figure (K), z axis' display value is zeroed automatically,

6: State machining ;


X window displays the expectant=EDM.DEEP,
Y window displays the current machined depth,
Z window displays the current position of the electrode,
Message window displays "EDM RUN";

7: When Z window displays the value = EDM.DEEP = -20.000, the buzzer sounds and the message window displays "BACKWARD", then the machining stops and the electrode withdraws.


During withdrawing electrode ,
Z window displays the current position of the electrode,
X window displays the preset value=EDM.DEEP + EDM.COMP,
Y window displays the formerly preset depth;

If the electrode doesn't exit in 25 seconds, the DRO will machine another hole by repeating steps 5—7.

When the electrode beyonds fireproof height (EDM. HOME), the DRO will machine another hole by repeating steps 5—7.

Press  to quit EDM when machining completes.

Press  to quit EDM during machining.

Note: The LED for  flashes during machining if DEEP.COMP is enabled.

X -20000 SCH 00

Y 0000

Z 7560

X -20000 EDM RUN

Y 0000

Z 0000

start machining

X -20000 EDM RUN

Y -8120

Z - 6790

in machining

X -20000 EDM RUN

Y -20000

Z - 20000

end machining

X -20000 BACKWARD

Y -20000

Z - 20000

electrode begin going back

X -20000 BACKWARD

Y -20000

Z - 2345

going back

X 20100 SCH 00

Y 20100

Z - 7560

X 0000 EDM 000

Y 0000

Z 5000

5.3 Combination of BHC,BHL and EDM Function

WE6800E can use EDM to machine holes when in BHC or BHL function.

Example: Process 6 holes with depth of 20mm as the figure(J) showing.

STEPS:

- 1: Set the following parameters in initial system setting:


EDM MODE = 1,

RELAY MODE = 0,

EDM COMP = 0;

- 2: Set EDM.DEEP= 20mm, EDM.HOME =3mm;

- 3: Set point O as datum in user coordinate system;

- 3: Press  to enter BHC function and set parameters:


ST.ANGLE=0° ;

END. ANGLE=0° ;



RADIUS=20mm;

HOLE.NUM=6;


DIRECTION=0;

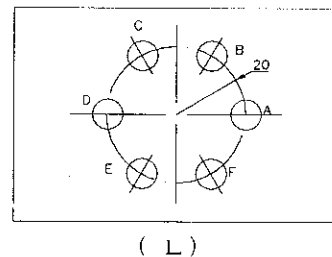
- 4: After all parameter set, the message window will display "HOLE 1". Move the machine table until "0.000" displays in X,Y window , it is the position of point A, then press  enter EDM function to process hole A. After hole A is machined ,DRO returns BHC.

- 5: Process hole B

Press  and the message window will display "HOLE 2" Move the machine table until "0.000" displays in X,Y window ,it is the position of point B, then press  enter EDM function to process hole B. After hole B is machined ,DRO returns BHC.

- 6: Process hole C,D,E,F in the same way.

Press  to return normal display state when all holes finished.



Example 2: Process 6 holes with depth 10mm as the figure showing.

STEPS:

- 1: Set the following parameters in initial system setting:


EDM MODE = 1,

RELAY MODE = 0,

EDM COMP = 0;

- 2: Set EDM.DEEP 10mm , EDM.HOME 3mm;

- 3: Set the point O as datum for user coordinat system;

- 3: Press  to enter BHL function and set parameters:

LINE.DIS=150mm;

LINE.ANG=30

HOLE.NUM=6

- 4: After all parameter setting, the message window will display "HOLE 1". Move the machine

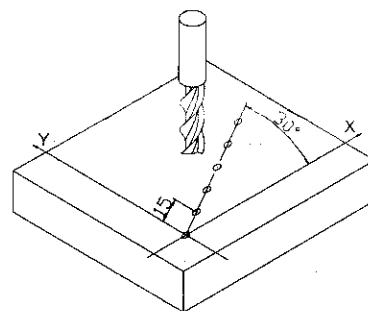






table until "0.000" displays in X,Y window, it is the position of point A, then press  to enter EDM function to process hole A. After hole 1 is machined, DRO returns BHC.

5: Press hole 2;

Press  and the message window will display "HOLE 2" Move the machine table until "0.000" displays in X,Y window, it is the position of point A., then press  to enter EDM function to process hole 2. After hole 2 is machined, DRO returns BHL.


6: Process other holes in the same way.

Press  to return normal display state when all holes are machined.

Chapter 6 CALCULATING FUNCTION


















6.1 Enter and exit Calculating Function

In normal display state, press  to enter calculating function
















In calculator, press  to exit calculating function

6.2 Calculating Example



Example 1: $123 + 76 \times 58 - 892 / 63$

Example 2: $358 + 456 \times \sin^{-1}(-0.5)$


              


Note:


- 1 If incorrect data is inputted, press  to cancel and input again.
- 2 Error would occur when calculating incorrectly, such as "0" is used as divisor or proceeding arcsine when absolute value is more than 1. In this case, the message window will display "ERR...". You can cancel this error message by pressing  and input data again.
- 3 The absolute value of inputted data and calculated result should be in the range of 0.000001 to 9999999, otherwise it can't be displayed.

6.3 Transferring the Calculated Results to Selected Axis

After calculating is overed, user can

press  to transfer the calculated result to X axis, then the X window will display this value.

Press  to transfer the calculated result to Y axis, then the Y window will display this value.

Press  to transfer the calculated result to Z axis, then the Z window will display this value

6.4 Transferring the Current Display Value in Window to Calculator

In calculator state,

Press to transfer the display value in X window to calculator.

Press to transfer the display value in Y window to calculator.

Press to transfer the display value in Z window to calculator.

Chapter 7 INITIAL SYSTEM SETTINGS

Function:


Set various parameters according to actual operation.


Parameter Items:


SEL SYS	Setting the number of linear scale
DIRECT	Setting positive direction for counter
LIN COMP	Setting linear compensation
R OR D	Radius/Diameter Mode
Z DIAL	Setting Z axis pitch
RESOLUTE	Setting the resolution of scale
RELAY.MOD	Setting relay mode
EDM MODE	Setting EDM mode
SDM DIR	Setting the input mode of SDM
ERROR	Enable / Disable error message display
SHRINK	Setting shrinkage
DEEP.COMP	Enable/Disable the electrode compensation
SLOP.MODE	Setting the slope machining mode
LATH.MODE	Setting the lathe mode
RI MODE	Setting RI mode
AUTO. SCH	Detecting the edge automatically or not
AXIS.TYPE	Setting the type of axis
ALL CLS	Clearing all customer setting and return default setting
EXIT	Saving parameters and exiting initial system settings



NOTE: what you have changed (except "ALL.CLS") would not been saved if you quit "SETUP"(initial system settings) without selecting "EXIT" item.


7.1 Enter/Exit Initial System Settings

Press  to enter initial system setting after DRO powers on


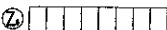

in 1 second, then "SETUP" displays in message window. Press  or




 to select the item you want to change.

If you want to quit initial settings, press  or  until "EXIT"

appears in message window and press .

    SETUP



    EXIT


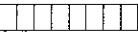
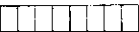
  


  

7.2 Setting the type of DRO

Because WE6800 series DROs (two axes or three axes display) shares the same software and their functions have some differences. DRO type must be set before use.

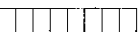
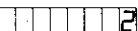

- 1: Enter "SETUP" and press  or  until "SEL SYS" appears in message window;


X  SEL SYS
Y 
Z 


- 2: Press ; then Y window displays "2" or "3".

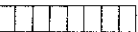
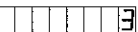
"2" means the DRO type is WE6800-2;


"3" means the DRO type is WE6800-3, WE6800E


X  SEL SYS
Y  2
Z 

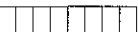
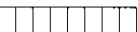
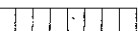
- 3: If press , Y window displays "2";

If press , Y window displays "3";

X  SEL SYS
Y  3
Z 

- 4: Press  to save your selection and exit this item;

Press  to cancel your change and exit this item;

X  SEL SYS
Y 
Z 

7.3 Setting Positive Direction for Counter

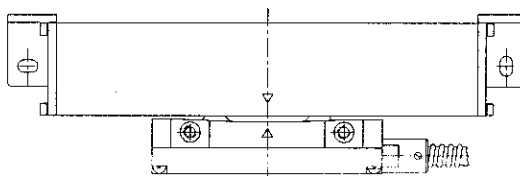
If the linear scale is installed as the figure, facing operator,

direction "0" means the display value will increase when scale moves from right to left and decrease when scale moves from left to right.



direction "1" means the display value will increase when scale moves from left to right and decrease when scale moves from right to left.




The counting direction of the scale is set by the erector, and the operator had better not change it.

Default: 0



STEPS:

- 1: Enter "SETUP" and then press  or  until "DIRECT" appears in message window.

X  DIRECT
Y 
Z 

- Message window displays “SEL AXIS”, which means the next step is to select axis.

(X) [][][][][] 0 SEL AXIS

(Y) [][][][][] 0

(Z) [][][][][] 0



- Press **[Z]** to change Z axis counting direction;


X

Y

Z

SEL AXIS



- Press  to cancel your change and exit.

(X) [] [] [] [] [] []

(Y) [] [] [] [] [] []



(Z) [] [] [] [] [] []


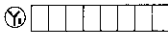
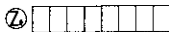
DIRECT [] [] [] [] [] []

measurement 400.000mm
 Standards value 400.040mm
 Compensation value $(400.000 - 400.040) \times 1000,000/400 = -100$
 Unit : $\mu\text{m}/\text{m}$;

Set linear error compensation : X axis 100, Y axis 50, Z axis -100.

STEPS:

- 1: Enter "SETUP", then press  or  until message window displays "LIN COMP"

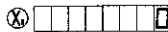
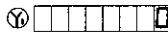
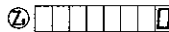
   LIN COMP




- 2: Press ,

X window, Y window, Z window displays the former linear error compensation coefficient separately.


Message window displays "SEL AXIS", which indicates that the next step is to select axis.


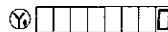
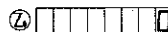
   SEL AXIS


- 3: Select axis

Press  to select X axis.







Note: Press  to select X axis. Data in X window flashes indicating that you can input the linear error compensation for X axis;

   ENTR PPM





Press  to select Y axis. Data in Y window flashes indicating that you can input the linear error compensation for Y axis;



Press  to select Z axis. Data in Z window flashes indicating that you can input the linear error compensation for Z axis;

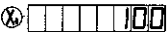
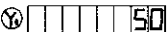
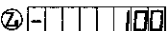
   SEL AXIS

Message window displays "ENTR.PPM", indicating it is waiting for a data to be inputted.

- 4: Press     in turn;



If incorrect number is input, press  to cancel and input again.

   SEL AXIS

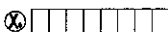
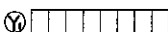
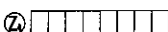
- 5: Input the error compensation coefficient for Y axis;


Press     in turn;

Input the error compensation coefficient for Z axis;

Press       in turn

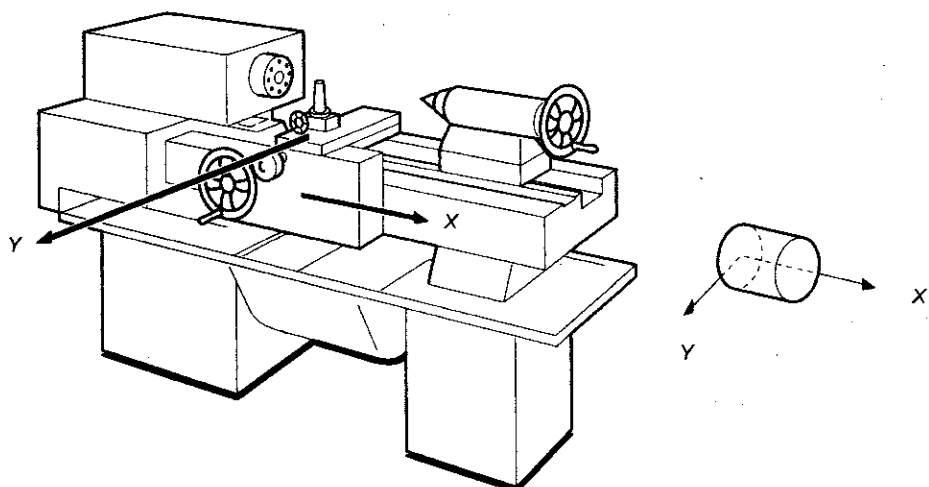


   LIN COMP

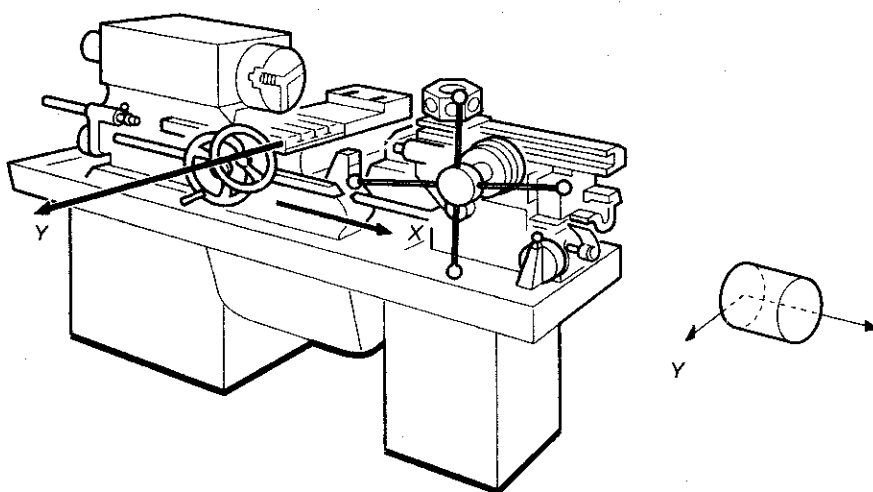
- 6: Press  to confirm your setting and exit linear error compensation setup.

7.5 Toggle Between R/D Display Mode

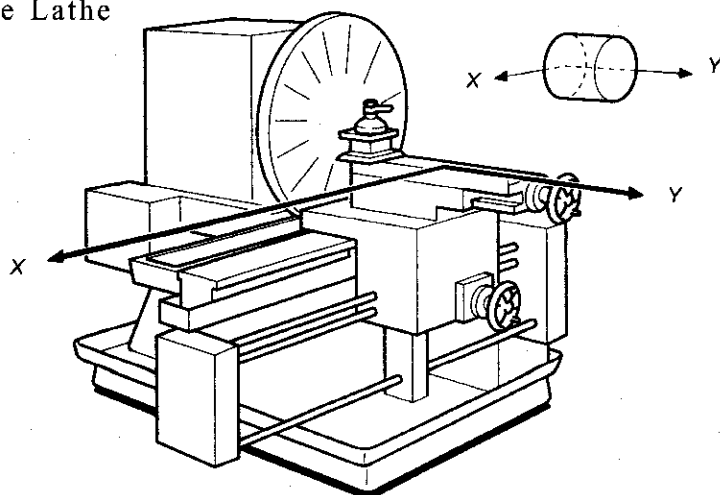
Center Lathe



Turret Lathe





Face Lathe

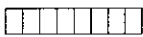
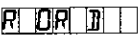
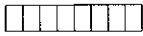
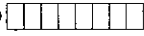



In common case, the display value is the distance between lathe tools and the coordinate origin. This display mode is called MODE R. When process cylinder given diameter measurement, diameter is the double distance between lathe tool and coordinate datum. The DRO will display the diameter in MODE D

Default mode: mode R

STEPS:

- 1: Enter "SETUP" and press  or  until the message window displays "R OR D";

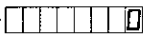
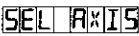

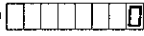
X  R OR D 
Y 
Z 

- 2: Press ,

X window, Y window and Z window displays "0" or "1" separately.


"0" means mode R, where the display value equals the actual measurement. "1" means mode D where the display value equals the double actual measurement.


Message window displays "SEL AXIS", which indicates the next step is to select axis;


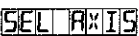
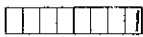
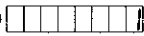
X  SEL AXIS 
Y 
Z 


- 3: Select axis


Press  to change the R/D mode of X axis;



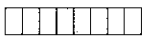
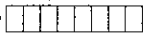
Press  to change the R/D mode of Y axis;

Press  to change the R/D mode of Z axis;

X  SEL AXIS 
Y 
Z 

- 4: Press  to save your change and exit ;

Press  to cancel your change and exit .

X  R OR D 
Y 
Z 



7.6 Setting Z axis Pitch

Z axis pitch should be set if Z axis is emulated for WE6800M-2.


Z axis pitch means the distance the Z axis travels when screw runs a revolution.

Default value : 2.5mm

Set Z axis pitch 2.4 mm

- 1: Enter "SETUP", then press  or  until message window displays "Z DIAL";

X  Z DIAL 
Y 

- 2: Press ,

Y window displays the former Z axis pitch;

Message window displays "Z DIAL";

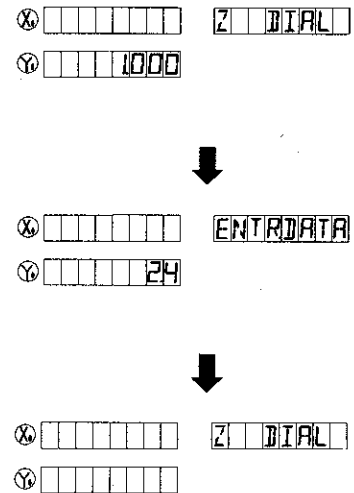
3: Input the Z axis pitch;

Press in turn to input Z axis pitch;

If incorrect data has been inputted, press to cancel and input again;

If a minus has been inputted, the DRO will accept its absolute value instead.

4: Press to confirm your setting and exit Z DAIL setup.



7.7 Setting the Resolution of Scale

Different scale has different resolution. WE6800 DRO can connect with 10 kinds of scale, and the resolution is 0.05 μ m, 0.1 μ m, 0.2 μ m, 0.5 μ m, 1 μ m, 2 μ m, 5 μ m, 10 μ m, 20 μ m, 50 μ m. So the resolution must be set to match the linear scale.

Default resolution : 5 μ m

Set the resolution of X axis, Y axis, Z axis 1um.

STEPS:

1: Enter "SETUP" and press or until "RESOLUTE" appears in message window;

2: Press .

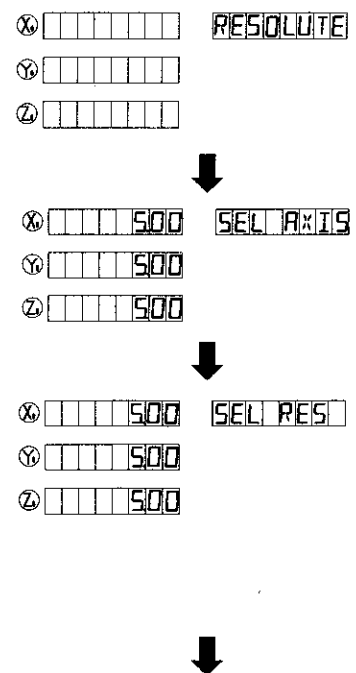
X window, Y window, Z window displays the former resolution of each axis separately. Message window displays "SEL AXIS", which indicates the next step is to select axis.





3: Select axis

Press to change the resolution of X axis, then data in X windows flashes.


Press to change the resolution of Y axis, then data in Y windows flashes.

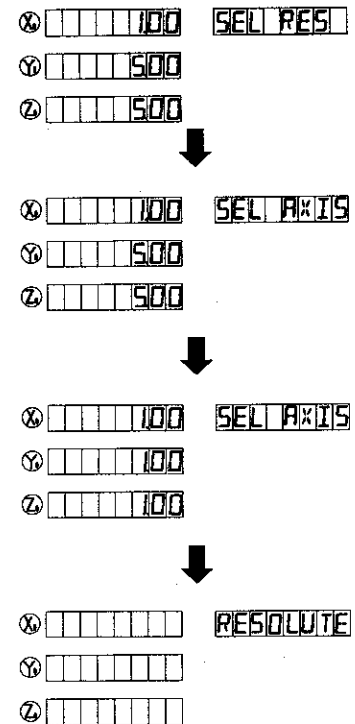
Press to change the resolution of Z axis. Number in Z windows flashes.



4: Press  or  to scroll through 0.05, 0.10, 0.20, 0.50, 1.00, 2.00, 5.00, 10.00, 20.00, 50.00. Press  to select "1.00" when it appears and return "SEL.RXIS" state. Press  to cancel your selection.

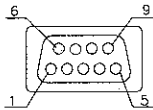
5: Set the resolution of Y axis, Z axis in the same way.

6: Press  to exit "RESOLUTE" setup.



7.8 Setting Relay Mode

The relay will send out an ON/OFF signal when process to target position. EDM.Relay interface has three pins: common, normal close, normal open. WE6800E provides two Relay mode which are just opposite. Operator can set it according to your circuit.



EDM Interface

PIN	NAME	COLOR
1	NC	
2	COMMON	ORG
3	NORMAL CLOSE	BRW
4	NC	
5	IN+	RED
6	NORMAL OPEN	YEL
9	IN-	BLK

Normal close and common pin:



RELAY MODE	Power ON	ENTER EDM	PROCESS TO TARGET POSITION	EXIT EDM	Power off
0	open	Open	Close	Open	close
1	close	close	Open	closeON	close


Normal open and common pin:



RELAY MODE	SWITCH ON	ENTER EDM	PROCESS TO TARGET POSITION	EXIT EDM	Power off
1	OFF	OFF	ON	OFF	open
0	ON	ON	OFF	ON	open


Default value: MODE 0


STEPS:


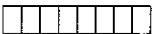

1: Enter "SETUP", then press  or  until the message window displays "RELAY.MOD";

2: Press , then the Y window displays "0" or "1";



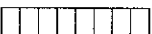
3: Press  or  to set the RELAY MODE

4: Press  to confirm your setting and exit "RELAY.MODE";

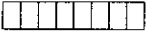

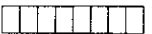
Press  to cancel your change and exit "RELAY.MODE".

X  RELAYMOD
Y 
Z 

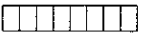
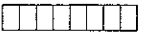
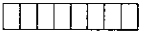


X  RELAYMOD
Y  0
Z 



X  RELAYMOD
Y  1
Z 



X  RELAYMOD
Y 
Z 



7.9 Setting the EDM Mode


WE6800 provides 6 EDM modes. For detail information, please refer to chapter five. EDM mode must be set before EDM machining.


Default mode: MODE 1


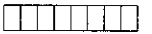

Set the EDM mode to mode 3.

STEPS:



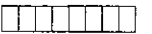
1: Enter "SETUP", then press  or  until message window displays "EDM MODE";

2: Press ,
then Y window displays the former EDM mode;

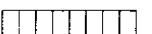
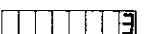
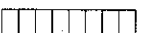
3: Press  to change the mode to 3;
Press the number key which you want to set the mode.

X  EDM MODE
Y 
Z 



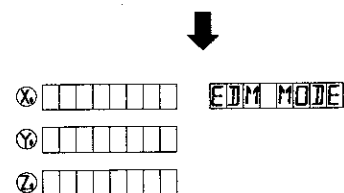
X  EDM MODE
Y  0
Z 



X  EDM MODE
Y  3
Z 

4: Press to confirm your setting and exit "EDM.MODE" setup

Press to cancel your change and exit "EDM.MODE" setup;



7.10 Setting the Input Mode in SDM Coordinate

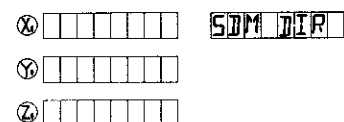
WE600E series DRO provides two inputting data mode in SDM coordinate:

MODE 0: Normal inputting mode, the data the DRO accepts equals the inputted data;

MODE 1: Special inputting mode, the data the DRO accepts equals the negative of the inputted number.

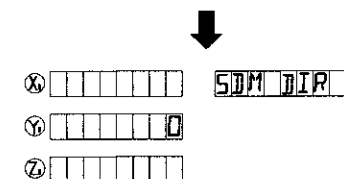
Example :Set SDM mode 1.

1: Enter "SETUP", then press or until the message window displays "SDM DIR";

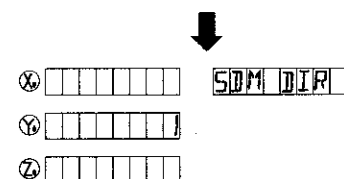


2: Press ,

Y window displays the former SDM mode;



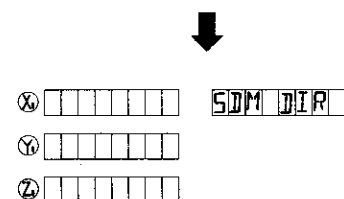
3: Press to set the SDM mode 1;



NOTE: Press to set the SDM mode 0.

4: Press to confirm your setting and exit "SDM.MODE".

Press to cancel your change and exit "SDM.MODE".



7.11 Enable / Disable ERROR Signal

WE6800 serial DRO provides the function of checking whether the counting signal is normal or not. It can display the ERROR information if some error occurs in counting signal. User can enable or disable this function.



“0” means no error information will be displayed and the DRO continues to work when there is something wrong with linear scale or encoder.

“1” means error information will be displayed when error occurs.

Default setting : 0 (disable display error message)


Example: Enable display ERROR message


STEPS:


1: Enter “SETUP”, then press  or  until “ERROR” appears in message window;


2: Press ,

Y window displays the former “0”;


3: Press  to change it to enable error message;


Note: Press  to change to disable error message.

4: Press  to confirm your change and exit “ERROR” setup.

Press  to cancel your change and exit “ERROR” setup.

X  ERROR 


Y 

Z 



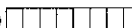
X  ERROR 

Y  0 

Z 



X  ERROR 

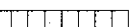
Y 

Z 



X  ERROR 

Y 

Z 



7.12 Setting Shrinkage Ratio

Shrinkage ratio must be set before using shrinkage function. Shrinkage ratio must be the range of 0.1 to 10.


Default ratio : 1.000

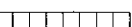
Set the shrinkage ratio 0.975.

STEPS:

1: Enter “SETUP” and press  or  until “SHRINK” appears in message window;

X  SHRINK 

Y 

Z 



2: Press ,

then message window displays "SHRINK";

ⓧ SHRINK

Ⓨ 1000

Ⓩ



3: Input shrinkage ratio;

Press 0 9 7 5 in turn;

If incorrect data has been input ,press to cancel and input again.

ⓧ SHRINK

Ⓨ 0975

Ⓩ



4: Press to confirm your input and exit "ERROR".

ⓧ SHRINK

Ⓨ

Ⓩ

Note: shrinkage ratio= $\frac{\text{Dimensions of the finished product}}{\text{Dimensions of the working piece}}$

7.13 Enable/Disable EDM Deepth Compensation

In EDM machine,deep compensation is no necessary and this function is disabled.It must be enabled before using it.

Default setting : disabling deep compensation

STEPS :

1: Enter "SETUP" and press or until the message window displays "DEEP.COMP";

ⓧ DEEPCOMP

Ⓨ

Ⓩ



2: Press ,

Y window displays the former setting.

"0" means deep compensation is disabled;

"1" means deep compensation is enabled;

ⓧ DEEPCOMP

Ⓨ

Ⓩ



3: Press 0 or 1 to disable/enable depth compensation;

ⓧ DEEPCOMP

Ⓨ

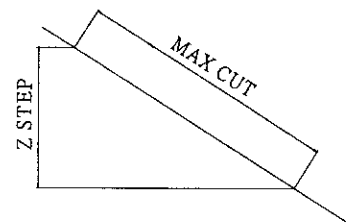
Ⓩ



☒ [] [] [] [] [] [] [] [] DEEPCOMP

☐ [] [] [] [] [] [] [] []

☒ [] [] [] [] [] [] [] []



(X) [] [] [] [] [] [] SLOPMODE

(Y) [] [] [] [] [] []

(Z) [] [] [] [] [] []

↓

(X) [][][][][][][] SLOPMODE

(Y) [][][][][][][] 0

(Z) [][][][][][][]

(X) [] [] [] [] [] [] [] []

(Y) [] [] [] [] [] [] [] []

(Z) [] [] [] [] [] [] [] []

SLOPMODE

[illegible]

7.15 Setting Lathe Mode

Lathe mode 0: Disable lathe function ;



Lathe mode 1: X window display value = the position value of X axis + the position value of Y axis;

Lathe mode 2: X window display value = the position value of X axis + the position value of Z axis;

Default mode: disable lathe mode


Set the lathe mode 1.

STEPS:

- 1: Enter "SETUP" and press  or  until the message window displays "LATH.MODE";

ⓧ LATH.MODE
 Ⓨ
 Ⓩ



- 2: Press ,
 then the Y window displays the former lathe mode;




ⓧ LATH.MODE
 Ⓨ
 Ⓩ

- 3: Set the new lathe mode;

Press 


ⓧ LATH.MODE
 Ⓨ
 Ⓩ



Note: Press  or  or  to change the lathe mode.

ⓧ LATH.MODE
 Ⓨ
 Ⓩ



- 4: Press  to confirm your change and exit "LATH.MODE".

ⓧ LATH.MODE
 Ⓨ
 Ⓩ

7.16 Setting RI MODE



WE6800 provides 8 RI modes . To search for RI point, please setup suitable RI mode at first.


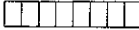

SIGNAL	1	2	3	4	5	6	7	8
A	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH
B	LOW	LOW	HIGH	HIGH	LOW	LOW	HIGH	HIGH
RI	LOW	LOW	LOW	LOW	HIGH	HIGH	HIGH	HIGH

Default mode: MODE 1 (A low, B low, RI low)


Set RI MODE 5 for X axis(A low,B low, RI high).


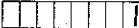

STEPS:

- 1: Enter "SETUP", then press  or  until the message window displays "RI MODE";

X  RI MODE
Y 
Z 






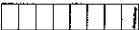
- 2: Press ,
X window, Y window, Z window displays the former RI mode respectively; message window displays "SEL AXIS", indicating the next step is to select axis;

X  SEL AXIS
Y 
Z 





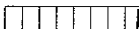

- 3: Select axis;


Press  to change RI mode of X axis. The number in X window flashes;

X  SEL MODE
Y 
Z 



Note:




Press  to change RI mode of Y axis, and the data in Y window flashes;


X  SEL MODE
Y 
Z 


Press  to change RI mode of Z axis, and the data in Z window flashes;




- 4: Press  or , then "1", "2", "3", "4", "5", "6", "7", "8" will be displayed in turn;

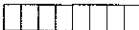


X  SEL AXIS
Y 
Z 

When "5" is displayed in message window, Press  to change RI mode and return "SEL.AXIS" state.

Press  to cancel your selection and return "SEL.AXIS" state.



- 5: Press  to exit "RI.MODE" setup.

X  RI MODE
Y 
Z 

7.17 Enable/Disable Edge Detection

Function: WE6800 series DRO can zeroing Z axis display value in normal display state when an external signal is detected if edge detection is enabled



- 0: The DRO don't zero Z axis display value in normal display state when an external signal is detected.
Edge detection is disable

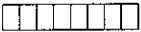


- 1: The DRO zeroes Z axis display value in normal display state when an external signal is detected
Edge detectopm is enable.


Default value: 0 (edge detection is disable)



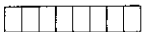
Example: Enable edge detection


STEPS:


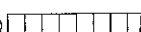
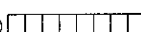
- 1: Enter "SETUP", then press  or  until message window displays "AUTO.SCH";


X  AUTO.SCH
Y 
Z 


- 2: Press , then Y window will display the former setting;

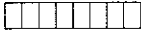

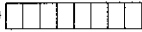
X  AUTO.SCH
Y  0
Z 

- 3: Press  to enable edge detect;

X  AUTO.SCH
Y  1
Z 

Note: Press  to disable detect.

- 4: Press  to confirm your selection and exit.

X  AUTO.SCH
Y 
Z 



7.18 Toggle between Linear Scale and Rotary Encoder

Both linear scale and rotary encoder can be installed in any axis. The linear scale is used to measure distance; the rotary encoder is used to measure angle.

Default: linear scale

Set rotary encoder in Z axis.

STEPS:

- 1: Enter "SETUP" and press  or  until the message window displays "AXIS.TYPE";




X  AXIS.TYPE
Y 
Z 

- 2: Press ,

X, Y, Z window displays the former type.

"LINEA" means linear scale.

"ENCODE" means rotary encoder.

X  LINEA
Y  LINEA
Z  LINEA

Message window displays “SEL AXIS”, which means the next step is to select axis.

- 3: Set Z axis are installed with rotary

Press **Z** until display in Z window is “PENCODE”;

Note:

Press **X** to change the display in X window;

Press **Y** to change the display in X window;

Press **Z** to change the display in X window;

- 4: Press **ENTER** to confirm your new set and exit.

Press **AC** to canceled your new set and exit.

↓

X	LINEA	SEL AXIS
Y	LINEA	
Z	ENCODE	

↓

X		AXISTYPE
Y		
Z		

7.19 Load default setup

Function: Clear all data except the linear compensation and DRO type. DRO will load default value for all parameters. After loading default setup, user must search RI once to enable resuming ABS datum function, otherwise to resume the datum by RI is unable.

STEPS:

- 1: Enter “SETUP”, then press **↑** or **↓** until the message window displays “ALL CLS”;

X		ALL CLS
Y		
Z		

- 2: Press **ENTER** and message windows displays “PASSWORD”, indicating the operator to input password. At this moment, there are two selections :

X		PASSWORD
Y		
Z		

A Press **AC** to quit “ALL.CLS”;

B Enter the correct the password to clear all;

↓

X		PASSWORD
Y		1999
Z		

- 3: Input the password;

Press **1** **9** **9** **9** **ENTER** in turn to load default value.

The message window displays “WAITING”, which means the clearing is going on.

↓

X		WAITING
Y		
Z		



- 4 Return normal display state after loading default value is finished..

⊗								ALL	CLS
Ⓢ									
Ⓩ									

The default value for all parameters are as following:

- Counting direction mode 0;
- The R/D is mode R ;
- Z DIAL = 2.5mm;
- Resolution = 5 μ ;
- EDM mode is MODE 1;
- Relay mode is mode 0;
- Shrinkage ration 1.000;
- Input mode in SDM is 0;
- Deep compensation is disabled;
- Lathe mode is mode 0;
- Slope machining parameter is Z step;
- RI MODE is mode 1;
- Disable the edge detection;
- Linear scale is intalled for any axis;

Chapter 8 TROUBLESHOOTING

The following are the easy solvent for troubleshooting. If they can not work, please contact with distributor for more service.

Trouble	Possible Reason	Solvent
No display	A The DRO isn't powered. B AC power voltage is not in the range of 85V to 230V.	A Check the fuse is OK or not. B Check the cocket is loose. C Check the input powr voltage is in the range of 85V to 235V.
Cover is charged	A Poor grounding is float B Leakage of electricity	Check the lathe and DRO are well grounded.
Display value is doubled	A Inporper resolution B Display mode D	A Set proper resolution. B Set display mode R.
No counting	A Poor contact of scale B No scale signaloutput C Useless of counting function	Exchange scale and check again.
Display value is in disorder	Memory is disorder	A Clear system. B Check compensation is proper.
Erroneous counting	A Poor precision of lathe B Too fast run speed of the lathe C Proper scale precision D Improper resolution is set E Improper linear error compensation F Useless of scale	A Repair lathe. B Reduce the move speed of scale. C Reinstall scale. D Set proper resolution. E Set proper linear error compensation . F Repair or exchange linear scale.

