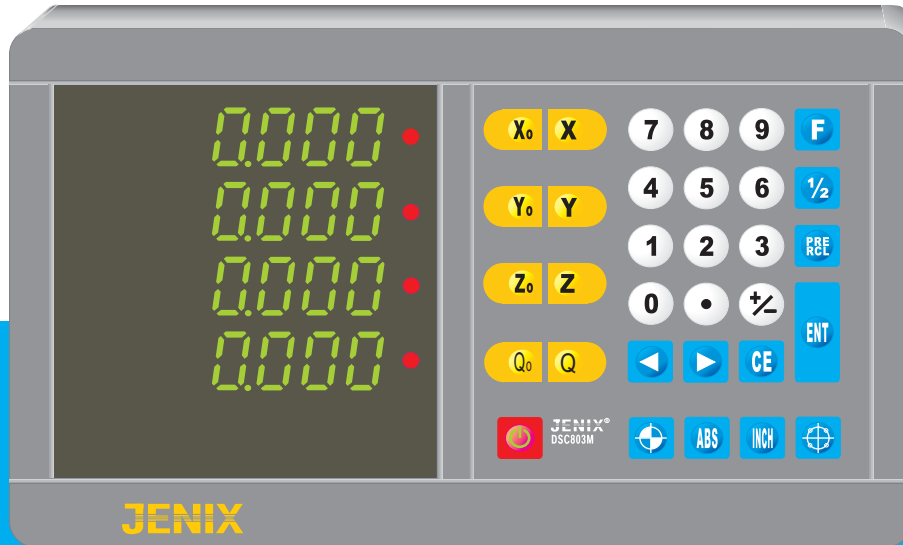


Digital
Counter

USER'S MANUAL

DSC800 SERIES



D C

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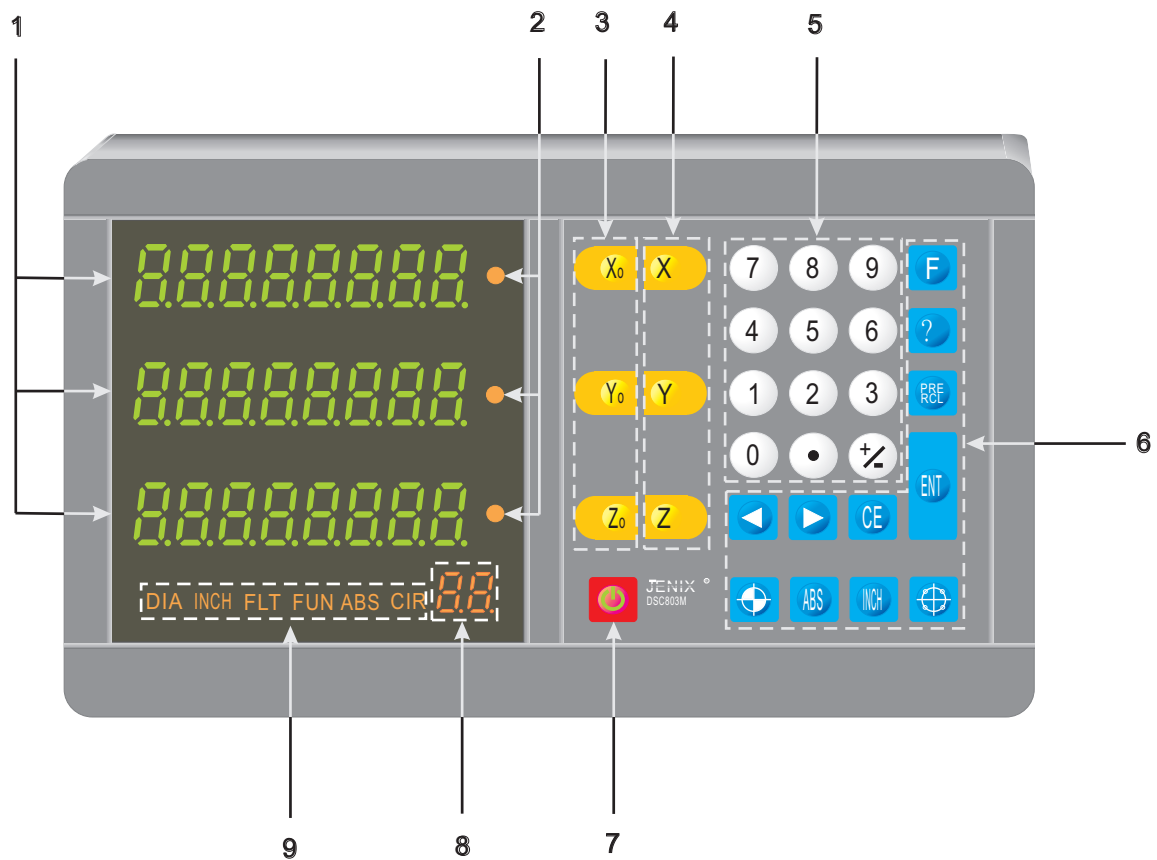
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D C

DESCRIPTION OF DSC-800

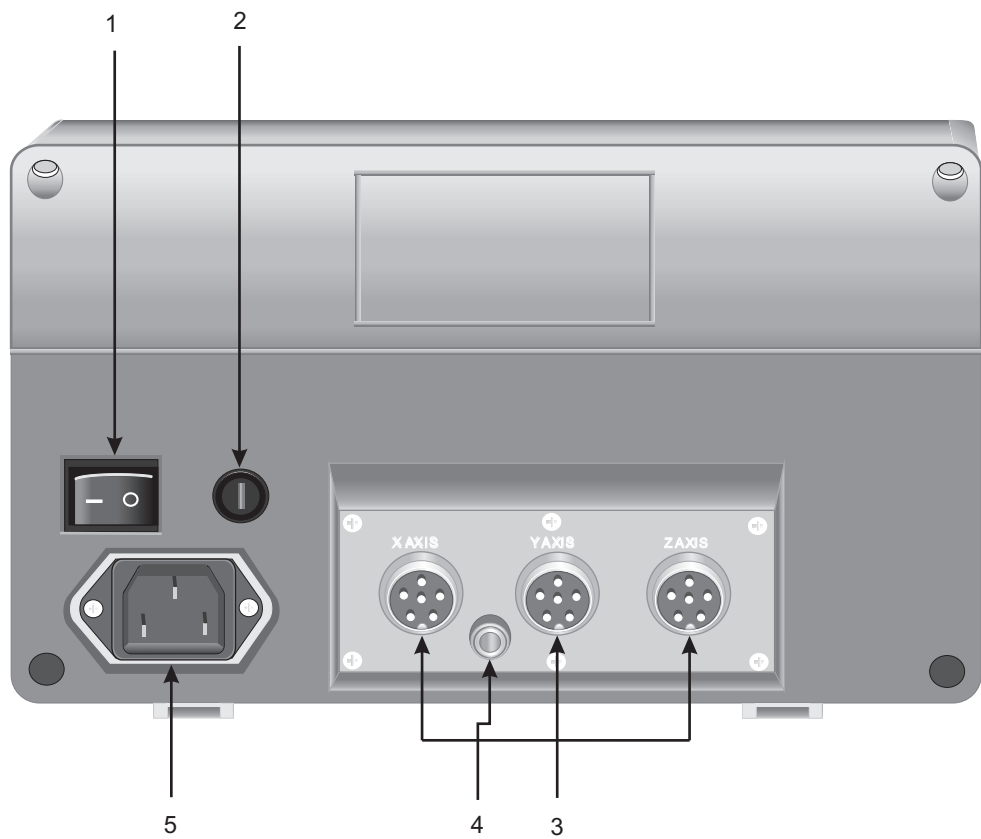
1. Front side



Keys	Description
1. Display area	Display the values of X, Y and Z axis
2. Axis indication lamp	Lamp will be on when the axis selected
3. Zero set keys	Initializing key
4. Axis indication key	To select the axis
5. Numbers key	0 ~ 9 numbers
6. Function Key	To begin any function, firstly start with "F"
7. ON/OFF switch	Turn on / off the display unit
8. Subsidiary display area	Display when "ABS" or Bolt hole circle... selected
9. Function lamp	Lamp will be on when a function selected

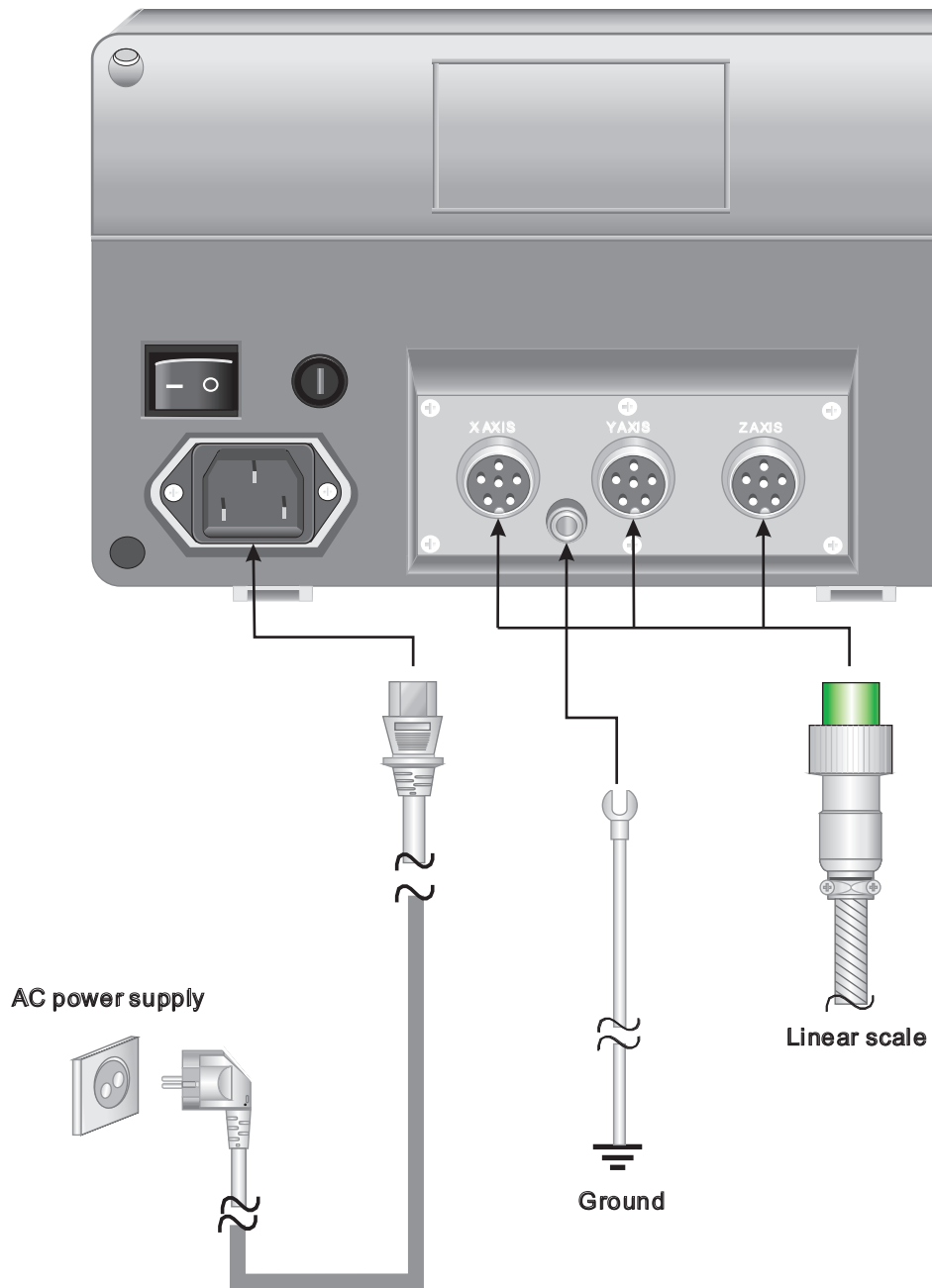
Note) This manual explains every function on the basis of 3-axis display unit (DSC-803).

2. Rear side



Keys	Description
1. Main power switch	ON/OFF the main power
2. Fuse	220V/1A
3. Connectors for scale	Connections for X, Y and Z axes
4. GND	Ground connector
5. AC supply power	Connection with a power cord

3. Connection



4. Description of Keys

Key	Name	Description
  	Axis zero key	Reset present displayed axis
  	Axis (indication) key	Select axis
  	Number key	Numbers of 0 ~ 9
	Dot key	Input the value of decimal point
	+/- key	Changing positive(+) or negative(-) value
	Enter key	?Enter? means completion of the process
 	Backward / Forward	When using "Menu" or "Function", move by sequence. Use this to look for the number of ABS or Bolt hole circle.
	Cancel key	Cancel input processing. Cancel excuting operation. Clear the error.
	Function key	To use any function, firstly push "F" key
	1/2 key	Divide present value into a half
	Preset Recall	Recall memerized coordinates
	Absolute position	To use ABS at any position
	Bolt hole circle	To use Bolt hole circle function
	Mm / inch	Changing mm / inch
	Error key	To find error of a scale
	On / Off key	Turn on / off the FND display

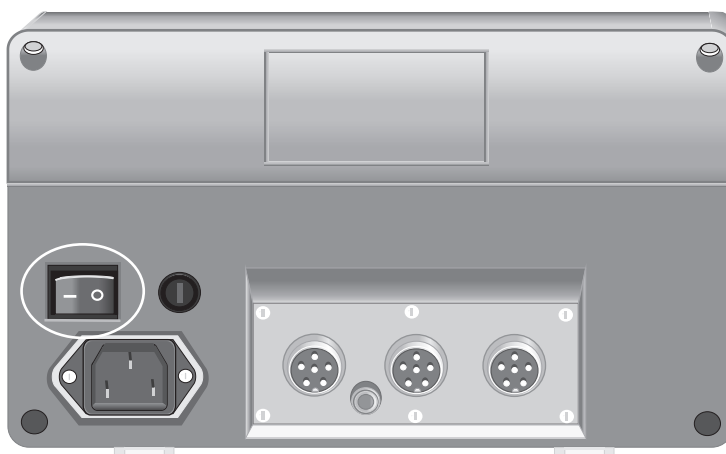
DC

BASIC OPERATION

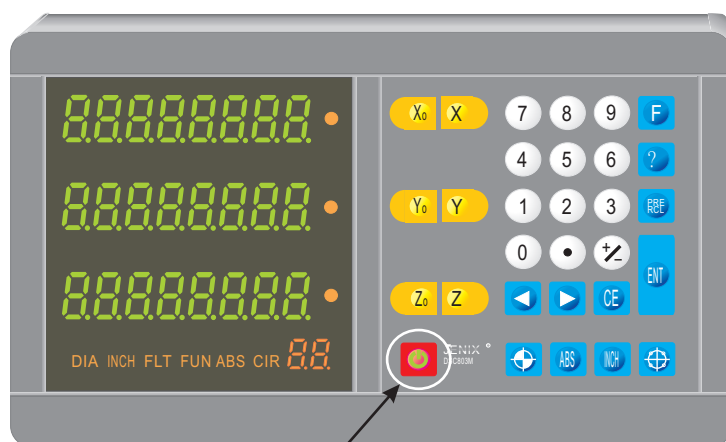
Power ON / OFF

For general use, leave the main switch always ON, use ON/OFF switch of the front side.
System will be on after 3 seconds of turning on.

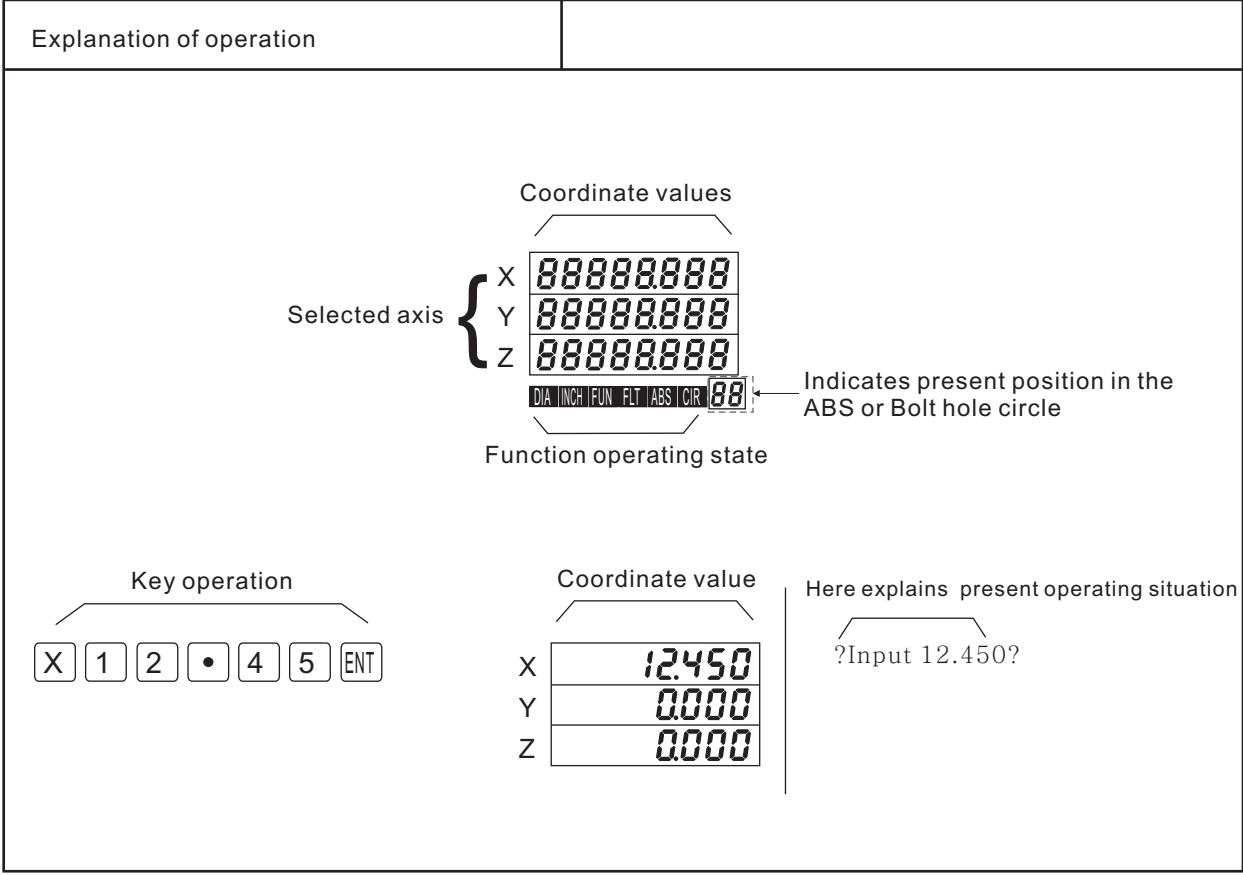
- Main switch of the rear side



- ON/OFF switch of the front side



ON/OFF switch. If the switch of rear side is on, inside circuit is still working even when this switch is off.



1. Preset

X → Input value → ENT

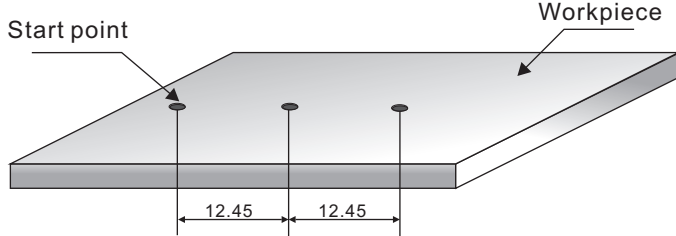
To input any value and to use the value repeatedly.

Ex. 

Input value is 12.45 and use it repeatedly.

Start point

Workpiece



X 1 2 . 4 5 ENT

X 12.450
Y 0.000
Z 0.000

Input "12.45"

2. Recall preset values

X → PRE RCL

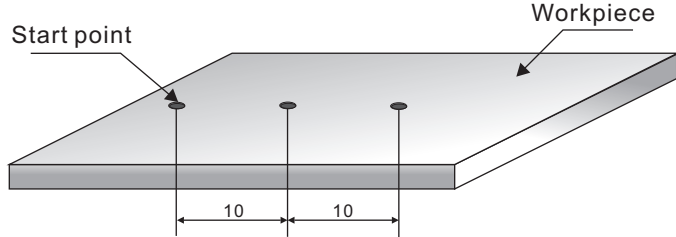
To recall preset values, and use it repeatedly

Ex. 

To make 3 holes with the interval of "10.000"

Start point

Workpiece



X 1 0 ENT

X 10.000
Y 0.000
Z 0.000

Input "10.000"

Move X-axis to 0.000

X 0.000
Y 0.000
Z 0.000

Move X-axis table until 0.000 dispalyed

X PRE RCL

X 10.000
Y 0.000
Z 0.000

Recall "10.000" to use it repeatedly

3. Reset (Display Zero)

X₀ Y₀ Z₀	To make each axis zero
Ex. X₀ Y₀ Z₀ X Y Z 0000 0000 0000	

4. 1 / 2 Function (dividing into a half)

X → ?	To divide a value into a half
Ex. To divide “12.400” into a half Input or recall “12.400” X Y Z 12.400 0000 0000 X ? X Y Z 6.200 0000 0000	

5. Changing from “mm” to “inch” or “inch” to “mm”

INCH	To change from mm to inch
Ex. 25.400 mm ↔ 1.000 inch INCH X Y Z 25.400 0000 0000 INCH X Y Z 1.0000 00000 00000	Input “inch” key then INCH lamp is on Push “inch”key to release, INCH lamp is off

6. Changing from ABS to INC or INC to ABS

ABS → ▶ } → ENT Input ABS No.	To set absolute position. ABS number can be 0~99 (100). In ABS mode, Bolt hole circle is unavailable. ABS number appears in the subsidiary display. Search ABS no. using, ◀ ▶ keys.	
1) Input ABS no.		
ABS	X 0000 Y 0000 Z 0000 ABS 0	← ?Blinking?
Input a number	X 0000 Y 0000 Z 0000 ABS 0	← Input one of 0~99
ENT	X 0000 Y 0000 Z 0000 ABS 0	
2) input ABS number using ◀ , ▶ key.		
ABS	X 0000 Y 0000 Z 0000 ABS 0	← ?Blinking?
▶ } ◀	X 0000 Y 0000 Z 0000 ABS 0	
ENT	X 0000 Y 0000 Z 0000 ABS 0	

3) To find preset ABS coordinates in ABS mode

ABS mode (lamp on)

X	1000
Y	7000
Z	0000
ABS 1	

In ABS mode, pre saved ABS number can be found easily using ◀ ▶ keys.



X	10000
Y	-9680
Z	24585
ABS 2	



X	1000
Y	7000
Z	0000
ABS 1	

4) To return to normal from ABS mode.

Normal state

X	2400
Y	8830
Z	39985



X	10000
Y	-9680
Z	24585
ABS 2	

Push key twice in the ABS mode, ABS lamp and number are off.



X	10000
Y	-9680
Z	24585
ABS 2	

← Blinking



X	10000
Y	-9680
Z	24585
ABS 2	

← Blinking



X	2400
Y	8830
Z	39985

Normal state



To assign "10.000" to the ABS no. 5 of X-axis

Normal mode

X 395.2 10
Y -8065
Z 0000

ABS

X 395.2 10
Y -8065
Z 0000

ABS 0

← Blinking



OR

5

X 40.765
Y 16.0 10
Z -3250

ABS 5

To find ABS no.5, move directly input 5.

ENT

X 123.785
Y 9600
Z -2400

ABS 5

X

1

0

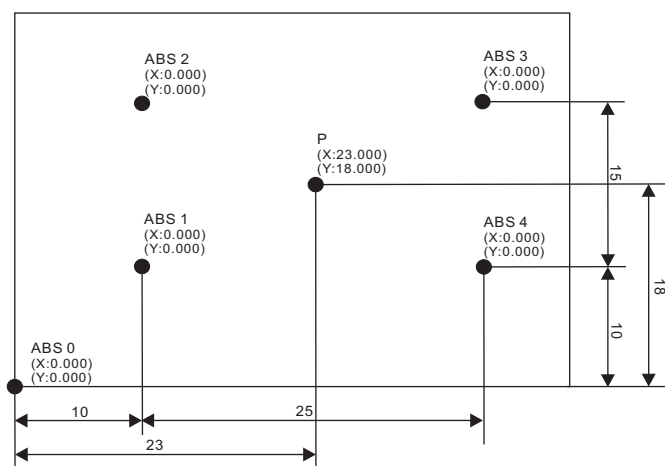
ENT

X 10.000
Y 9600
Z -2400

ABS 5

Type "10.000"

Ex. To assign each point(coordinates) to each ABS number.



<PIC. 1>

Normal state

X -20945
Y 13800
Z 1000

X₀ Y₀ Z₀

X 0000
Y 0000
Z 0000

ABS

X -20945
Y 13800
Z 1000

Make each axis zero even in the normal mode.

▶
◀
OR
0

ENT

X -20945
Y 13800
Z 1000
ABS 0

Changing from Normal to ABS mode

← ?Blinking

X 0000
Y 0000
Z 0000
ABS 0

Move to "0" using ◀▶ keys, or type "0"

X₀ Y₀

X 0000
Y 0000
Z 0000
ABS 0

X 10000
Y 10000
Z 0000
ABS 0

Move worktable until 10.000 displayed in the X and Y axis window. (see ABS.1 of <PIC.1>)

Initial preset value from ABS no.0~99 is "0.000"

▶	X10.000 Y10.000 Z0.000 ABS1	1) Define ABS no.1
X ₀ Y ₀	X0.000 Y0.000 Z0.000 ABS1	Move to "1" using ▶
▶	X0.000 Y15.000 Z0.000 ABS1	Move worktable until "15.000" displayed in the Y-axis window (ABS no.2 in the <PIC.1>)
Y ₀	X0.000 Y15.000 Z0.000 ABS2	1) Define ABS no.2
▶	X0.000 Y0.000 Z0.000 ABS2	Move to "2" using ▶
X ₀	X25.000 Y0.000 Z0.000 ABS2	Move worktable until "25.000" displayed in the X-axis window (ABS no.3 in the <PIC.1>)
▶	X25.000 Y0.000 Z0.000 ABS3	1) Define ABS no.3
Y ₀	X0.000 Y0.000 Z0.000 ABS3	Move to "3" using ▶
▶	X0.000 Y-15.000 Z0.000 ABS3	Move worktable until -15.000" displayed in the Y-axis window (ABS no.4 in the <PIC.1>)
Y ₀	X0.000 Y-15.000 Z0.000 ABS4	1) Define ABS no.4
	X0.000 Y0.000 Z0.000 ABS4	Move to "4" using

Ex. To find the coordinates of ABS no.1 as in the <pic.1>,

Normal mode

X	23000
Y	18000
Z	0000

ABS

X	0000
Y	0000
Z	0000

ABS 4

← ?Blinking?

▶
 ◀
 OR
 1

X	13000
Y	8000
Z	0000

ABS 1

Move to "1" using ◀ ▶ keys, or type "1"

ENT

X	13000
Y	8000
Z	0000

ABS 1

X	0000
Y	0000
Z	0000

ABS 1

ABS no.1 can be found by moving X-axis and Y-axis worktables until 0.000 displayed each window.

7. Bolt hole circle



→ Input Radius(r) or Diameter(d) →

ENT

→ Input the number of holes (d-no) →

ENT

→ Input Start angle (Sph) →

ENT

→ Input Final angle (Eph) →

ENT

There are 4 factors for Bolt hole circle.

1) Radius (R), or Diameter(d)
2) The number of holes: d-no
3) Start angle: Sph
4) Final angle: Eph

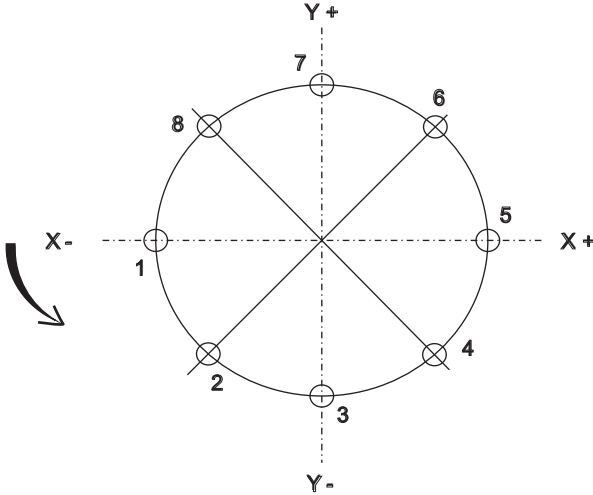
Details for 4 factors (imputable range)

Factors	Available range
Radius(r) or diameter(d)	+8000.999mm or +400.9998inch
The number of holes	2 ~ 99 holes
Start angle (Sph)	0.000 ~ 359.999
Final angle (Eph)	0.001 ~ 999.999

Ex.

An example of a bolt hole circle

Axis setting = X & Y axis
Radius(r) = 10.0
The number of holes = 8
Start angle = 0°.0"
Final angle = 360°.0"



Normal mode

X₀

Y₀

Z₀



1

0

X

Y

Z

12.460

-9845

30.100

X

Y

Z

0000

0000

0000

X

Y

Z

c l r rAd

0000

0000

CIR

X

Y

Z

c l r rAd

10000

0000

CIR

Note

Before setting for bolt hole circle, a datum point should be defined.

Input 4 factors → move worktable → X & Y-axis window display "0.000" → find next hole by pushing  key.

By using  keys, the position (or ABS no.) of previous or next hole can be found easily.

Bolt hole circle is unavailable in the 1-axis display unit

Please do not move worktable during inputting factors.

← Blinking

18

ENT	X d-no Y / Z 0.000 CIR	
4	X d-no Y 8 Z 0.000 CIR	Input the number of holes, "8".
ENT	X 5Ph Y 0.000 Z 0.000 CIR	Push ENT key as the start angle is "0°".
ENT	X EPh Y 360.000 Z 0.000 CIR	Final angel will be 360°, as the start angle is 0°. Final angle = start angle + 360
ENT	X 10.000 Y 0.000 Z 0.000 CIR	This is the position of first hole.

- NOTE -

- * Processing direction is counterclockwise.
- * Final angle should be added 360 to the start angle.

Final angle (°) = Start angle + 360

		► An example of bolt hole circle
	X 10.000 Y 0.000 Z 0.000 CIR 1	1st hole
Move worktable until 0.000 displayed in the X-axis window.	X 0.000 Y 0.000 Z 0.000 CIR 1	1) Execute hole processing
▶	X -2.935 Y 7.070 Z 0.000 CIR 2	2nd hole
Move worktable until 0.000 displayed in the X & Y -axis window.	X 0.000 Y 0.000 Z 0.000 CIR 2	2) Execute 2nd hole processing
▶	X -7.075 Y 2.930 Z 0.000 CIR 3	3rd hole
Move worktable until 0.000 displayed in the X & Y -axis window.	X 0.000 Y 0.000 Z 0.000 CIR 3	3) Execute 3rd hole processing
▶	X -7.075 Y -2.930 Z 0.000 CIR 4	4th hole
Move worktable until 0.000 displayed in the X & Y -axis window.	X 0.000 Y 0.000 Z 0.000 CIR 4	4) Execute 4th hole processing



X -2935
Y -7070
Z 0000
CIR 5

5th hole

Move worktable until 0.000 displayed in the X & Y -axis window.

X 0000
Y 0000
Z 0000
CIR 5

5) Execute 5th hole processing



X 2935
Y -7070
Z 0000
CIR 6

6th hole

Move worktable until 0.000 displayed in the X & Y -axis window.

X 0000
Y 0000
Z 0000
CIR 6

6) Execute 6th hole processing



X 7075
Y -2930
Z 0000
CIR 7

7th hole

Move worktable until 0.000 displayed in the X & Y -axis window.

X 0000
Y 0000
Z 0000
CIR 7

7) Execute 7th hole processing



X -7075
Y 2930
Z 0000
CIR 8

8th hole

Move worktable until 0.000 displayed in the X & Y -axis window.

X 0000
Y 0000
Z 0000
CIR 8

8) Execute 8th hole processing

8. Axis setting for Bolt hole circle

1). Setting as X & Y-axis

F → ▶ → ENT → ENT

Only available in 2, 3 and 4-axis display unit.

F	X	1L A t E
	Y	0000
	Z	0000
	FUN	
▶	X	2c 1r c L E
	Y	0000
	Z	0000
	FUN	
ENT	X	1A H 15 H Y
	Y	0000
	Z	0000
	FUN	
ENT	X	0000
	Y	0000
	Z	0000

1). Setting as X & Z-axis

F → ▶ → ENT → ▶ → ENT

Only available in DSC-803(3-axis), 804(4-axis) display unit.

F	X	1L A t E
	Y	0000
	Z	0000
	FUN	
▶	X	2c 1r c L E
	Y	0000
	Z	0000
	FUN	
ENT	X	1A H 15 H Y
	Y	0000
	Z	0000
	FUN	
▶	X	2A H 15 H Z
	Y	0000
	Z	0000
	FUN	
ENT	X	0000
	Y	0000
	Z	0000

3). Setting as Y & Z-axis

F

→

▶

→

ENT

→

▶

→

▶

→

ENT

Only available in DSC-803(3-axis), 804(4-axis) display unit.

F	X	1L R t E
	Y	0000
	Z	0000
		FUN
▶	X	2c 1r c L E
	Y	0000
	Z	0000
		FUN
ENT	X	1A H 15 H Y
	Y	0000
	Z	0000
		FUN
▶	X	2A H 15 H Z
	Y	0000
	Z	0000
		FUN
▶	X	3A H 15 Y Z
	Y	0000
	Z	0000
		FUN
ENT	X	0000
	Y	0000
	Z	0000

4). Setting as Radius & Diameter

F → ▶ → ENT → ▶ → ▶ → ▶ → ENT		Only available in DSC-802, 803, 804 display unit.	
F	X	1. R t E	Changing radius ↔ diameter (Bolt hole circle)
	Y	0000	
	Z	0000	
	FUN		
▶	X	2. r c L E	
	Y	0000	
	Z	0000	
	FUN		
ENT	X	1. R H 15 H Y	
	Y	0000	
	Z	0000	
	FUN		
▶	X	2. R H 15 H Z	
	Y	0000	
	Z	0000	
	FUN		
▶	X	3. R H 15 Y Z	
	Y	0000	
	Z	0000	
	FUN		
▶	X	4. d 1. R - r R d	
	Y	0000	
	Z	0000	
	FUN		
ENT	X	0000	
	Y	0000	
	Z	0000	

9. Error Message

	Cable cut. Inaccurate operation due to dust or dirt. Scratch or crack of a glass scale. Push CE key, error message will disappear <Note> when new scale installed or repaired, push CE key before using, to clear Error message.	
 There is no scale connected in X-axis of a display unit. Ex.  To remove error message, push CE key  	X  Y  Z   X  Y  Z   X  Y  Z   X  Y  Z   X  Y  Z  	

This means cable of a scale is cut or disconnected.

Measured value error due to dirt or foreign body in a scale.

Measured value error due to damage or scratch of a glass scale

Remove the error message by CE key

Cause of Error and solution

Symptom	Cause	Solution
Inaccuracy	Foreign body in a scale. Lubrication oil in a scale. Loose connection of a scale. No ground. Lubrication in joint of extension cable. Wrong operation for Rate or Resolution. Breakdown of glass, reading head or flexible cable.	Remove the foreign body. Remove the lubrication oil. Tighten up the connectors. It needs grounding. Clean up the joint part. Operate "RATE" or "Resolution" Otherwise, contact your local service.
No counting	Electric shock from outside. Wrong operation for input "RATE".	Check the ground. Correct "RATE"
?OPEN? message	There is no connection. Wire is cut.	Make sure the connection and wire cut. Otherwise, contact your local service.

F

All of operation for function starts from F key

- F**
- 1. LATHE : Summing function for lathe (38p)
 - 2. CIRCLE : Bolt hole circle (22 ~ 24p)
 - 3. SCALE : Changing resolution
 - 4. DIR : Changing processing direction
 - 5. RATE : Rate, Correction or Compensation.
 - 6. DIA : Double counting for lathe (39 ~ 40p)
 - 7. RESET: Initializing function
 - 8. TEST: FND (Flexible Numeric Display) testing

1. Changing resolution (SCALE)

1) 5/1000mm (3.ScALE)
(0.0002 inch)

F → ▶ → ▶ → ENT → X → ENT → 5 → ENT

After applying new resolution, 0.000 will be displayed.
Resolution should be set according to the scale's resolution

F ▶ ▶ (Double)	X 35cALE Y 0.000 Z 0.000 RUN	
ENT	X 35cALE Y SEL RH 15 Z 0.000 RUN	
X	X 5.000 Y SEL RH 15 Z 0.000 RUN	
ENT	X 5.000 Y SEL RH 15 Z 0.000 RUN	
5	X 5.000 Y SEL RH 15 Z 0.000 RUN	
ENT	X 0.000 Y 0.000 Z 0.000	

2) 1/1000mm (3.ScALE)
(0.00004 inch)

F → ▶ → ▶ → ENT → X → ENT → 1 → ENT		After applying new resolution, 0.000 will be displayed. Resolution should be set according to the scale's resolution
F ▶ ▶ (Double)	X 35cALE Y 0.000 Z 0.000 RUN	
ENT	X 35cALE Y SEL RH 15 Z 0.000 RUN	
X	X 5.000 Y SEL RH 15 Z 0.000 RUN	
ENT	X 5.000 Y SEL RH 15 Z 0.000 RUN	
1	X 1.000 Y SEL RH 15 Z 0.000 RUN	
ENT	X 0.000 Y 0.000 Z 0.000	

3) 5/100mm (3.ScALE)
(0.002 inch)

F → **▶** → **▶** → **ENT** → **X** → **ENT**
→ **5** → **0** → **ENT**

After applying new resolution, 0.000 will be displayed.
Resolution should be set according to the scale's resolution

F **▶** **▶**
(Double)

X 35cALE
Y 0.000
Z 0.000
FUN

ENT

X 35cALE
Y SEL RH 15
Z 0.000
FUN

X

X 5.000
Y SEL RH 15
Z 0.000
FUN

ENT

X 5.000
Y SEL RH 15
Z 0.000
FUN

5 **0**

X 50.000
Y SEL RH 15
Z 0.000
FUN

ENT

X 0.000
Y 0.000
Z 0.000

4) 1/100mm (3.ScALE)

(0.0004 inch)

F → **▶** → **▶** → **ENT** → **X** → **ENT**
→ **1** → **0** → **ENT**

After applying new resolution, 0.000 will be displayed.
Resolution should be set according to the scale's resolution

F **▶** **▶**
(Double)

X 35cALE
Y 0.000
Z 0.000
FUN

ENT

X 35cALE
Y 5EL AH 15
Z 0.000
FUN

X

X 5.000
Y 5EL AH 15
Z 0.000
FUN

ENT

X 5.000
Y 5EL AH 15
Z 0.000
FUN

1 **0**

X 10.000
Y 5EL AH 15
Z 0.000
FUN

ENT

X 0.000
Y 0.000
Z 0.000

2. Changing direction (4.dlr)

F → ▶ → ▶ → ▶ → ENT → X → ▶ } → ENT
◀ }

Processing direction can be changed as below
Left (+), Right(-) → Left (-), Right (+)

F ▶ ▶ ▶ (3 times)	X 4d 1r Y 0.000 Z 0.000 RUN
ENT	X 4d 1r Y SEL AH 15 Z 0.000 RUN
X	X d 1r ---] Y SEL AH 15 Z 0.000 RUN
▶ } ◀ }	X d 1r [--- Y SEL AH 15 Z 0.000 RUN
ENT	X 0.000 Y 0.000 Z 0.000

3. Rate or Correction (5.rAtE)

F → ▶ → ▶ → ▶ → ▶ → ENT → X → ENT → Input RATE → ENT	- In case measured distance(value) is different from real distance. - Initial value from factory is "1.000000". - Input range is 0.000001~9.999999. - If 0.000000 is set, there will not be displayed anything but "0".
--	--

F ▶ ▶ ▶ ▶ (4 times) ENT X ENT Input RATE ENT	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>5.rAtE</td></tr> <tr><td>Y</td><td>0.000</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table> FUN <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>5.rAtE</td></tr> <tr><td>Y</td><td>SEL AH 15</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table> FUN <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>1.000000</td></tr> <tr><td>Y</td><td>SEL AH 15</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table> FUN <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>1.000000</td></tr> <tr><td>Y</td><td>SEL AH 15</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table> FUN <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>1.000000</td></tr> <tr><td>Y</td><td>SEL AH 15</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table> FUN <table border="1" style="width: 100%; border-collapse: collapse;"> <tr><td>X</td><td>0.000</td></tr> <tr><td>Y</td><td>0.000</td></tr> <tr><td>Z</td><td>0.000</td></tr> </table>	X	5.rAtE	Y	0.000	Z	0.000	X	5.rAtE	Y	SEL AH 15	Z	0.000	X	1.000000	Y	SEL AH 15	Z	0.000	X	1.000000	Y	SEL AH 15	Z	0.000	X	1.000000	Y	SEL AH 15	Z	0.000	X	0.000	Y	0.000	Z	0.000	Input "1.000000" as a rate value
X	5.rAtE																																					
Y	0.000																																					
Z	0.000																																					
X	5.rAtE																																					
Y	SEL AH 15																																					
Z	0.000																																					
X	1.000000																																					
Y	SEL AH 15																																					
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X	1.000000																																					
Y	SEL AH 15																																					
Z	0.000																																					
X	0.000																																					
Y	0.000																																					
Z	0.000																																					

Correct or Compensation

F → **▶** → **▶** → **▶** → **▶** → **ENT** → **X** → **ENT** → Input RATE → **ENT**

Ex. 1

Real distance (100.000)
 Measured distance (100.100) = 0.999000

Ex. 2

Real distance (100.000)
 Measured distance (099.900) = 1.001001

REF.

$$\frac{\text{Value from a check master or a block gauge}}{\text{Value of display unit}}$$



Real distance = 100mm
Measured distance = 100.4mm

$$\frac{100}{100.4} = 0.996015$$

F **▶** **▶** **▶** **▶**
(4 times)

X	5.7 A t E
Y	0.000
Z	0.000

FUN

ENT

X	5.7 A t E
Y	SEL AH 15
Z	0.000

FUN

X

X	1000000
Y	SEL AH 15
Z	0.000

FUN

ENT

X	1000000
Y	SEL AH 15
Z	0.000

FUN

0 **.** **9** **9** **6** **0** **1** **5**

X	0.996015
Y	SEL AH 15
Z	0.000

FUN

ENT

X	0.000
Y	0.000
Z	0.000

4.Reset function (7.rESEt)

1) ABS Reset (Delete ABS data)

F

→

▶

→

▶

→

▶

→

▶

→

▶

→

▶

→

ENT

→

▶

→

ENT

Be careful to use ABS reset, as this will delete all saved ABS data.

F

▶

▶

▶

▶

▶

▶

(6 times)

ENT

ENT

X

7.rESEt

Y

0.000

Z

0.000

FUN

X

1.rSt Abs

Y

0.000

Z

0.000

FUN

X

1.rSt Abs

Y

-- In It --

Z

0.000

FUN

X

0.000

Y

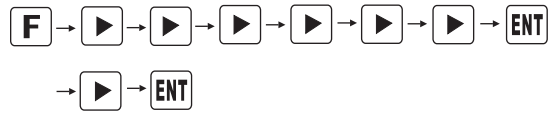
0.000

Z

0.000

Move to No.7

2) Program Reset (Delete all saved data)



1) All saved data deleted and return factory setting;

- * Resolution : 5/100.
- * Bolt hole circle : set as X & Y-axis, radius
- * Direction : the state from factory
- * Rate : 1.000000
- * Removal of double counting function



X	7-E5Et
Y	0000
Z	0000

FUN

Move to No.7



X	1-5t Abs
Y	0000
Z	0000

FUN



X	2.5t ALL
Y	0000
Z	0000

FUN



X	2.5t ALL
Y	-- 1n 1t --
Z	0.000

FUN

X	0000
Y	0000
Z	0000

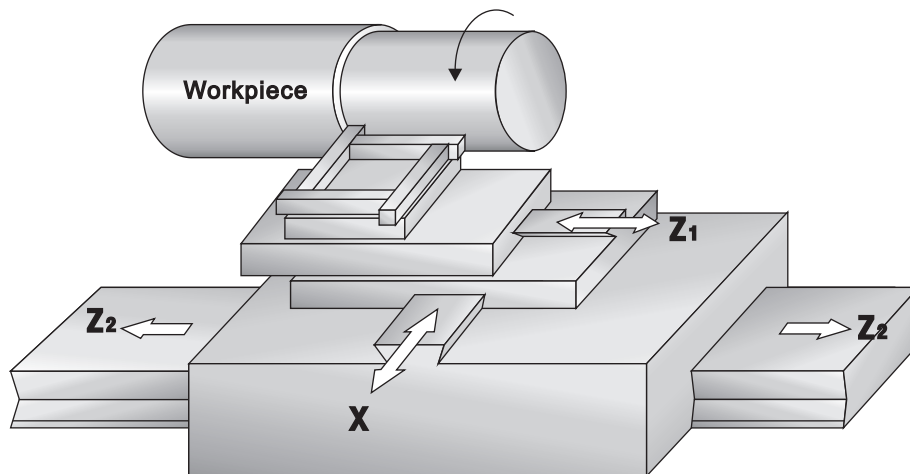
5. Testing FND (8.tESt)

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → CE	Check FND (Flexible Numeric Display)
F ▶ ▶ ▶ ▶ ▶ ▶ ▶ (7 times) X 8.tESt Y 0.000 Z 0.000 FUN X 11111111 Y 11111111 Z 11111111 DIA INCH FUN REF ABS CIR 1 1 X 0.000 Y 0.000 Z 0.000 RUN CE X 0.000 Y 0.000 Z 0.000	Move to No.8 During the test, all of the numbers changing from 1 to 8. This is repeated 3 times. To quit testing, push CE key.

F

Set lathe function

- F
- 1. LATHE : Summing function (38p)
 - 2. DIA : Double counting function (39~40p)



1. Lathe Summing Function (1.LAtHE)

F

→

ENT

→

▶

}

←

→

ENT

• This function is available in the model DSC-803, 804.

• X-axis can be adjustable.

• Result from summing Y & Z-axis appears in the Y-axis window.

• Inputting value and Zero setting don't work in the Z-axis

• If Y-axis is reset by , Z-axis is also reset automatically.

• Bolt hole circle doesn't work.

F

ENT

▶

←

ENT

X

Y

Z

FUN

X

Y

Z

FUN

X

Y

Z

FUN

X

Y

Z

LAtHE

0000

0000

LAtHE

nor

0000

LAtHE

LAtHE

0000

0000

0000

LAtHE

NOR j LATHE by

▶

◀

Ex.

Summing present values

F

ENT

▶

←

ENT

X

Y

Z

FUN

X

Y

Z

FUN

X

Y

Z

FUN

X

Y

Z

-23600

41260

65085

LAtHE

nor

65085

LAtHE

nor

65085

LAtHE

LAtHE

65085

-23600

106345

LAtHE

Result from summing Y, Z-axis shows in the Z-axis window

2. Double Counting Function (6.dIA)

F

▶

▶

▶

▶

▶

▶

ENT

▶

X

▶

▶

ENT

Select double counting function, one axis counts double.
(In working with a lathe, diameter is necessary)

F

▶

▶

▶

▶

▶

(5E)

ENT

X

▶

▶

▶

▶

▶

▶

ENT

X

6.d 1A

Y

0000

Z

0000

FUN

X

6.d 1A

Y

SEL RH 15

Z

0000

FUN

X

rAd

Y

SEL RH 15

Z

0000

FUN

X

d 1A

Y

SEL RH 15

Z

0000

FUN

X

0000

Y

0000

Z

0000

DIA

Move to No.6

X-axis will be double counting.
DIA j RAD by ◀ ▶



To set double counting function
(by diameter) for X-axis.

F
(5 times)

ENT

X

}

ENT

X	25.000
Y	-8.395
Z	40.620

X	6.d 1A
Y	-8.395
Z	40.620

FUN

X	6.d 1A
Y	SEL AH 15
Z	40.620

FUN

X	rAd
Y	SEL AH 15
Z	40.620

FUN

X	d 1A
Y	SEL AH 15
Z	40.620

FUN

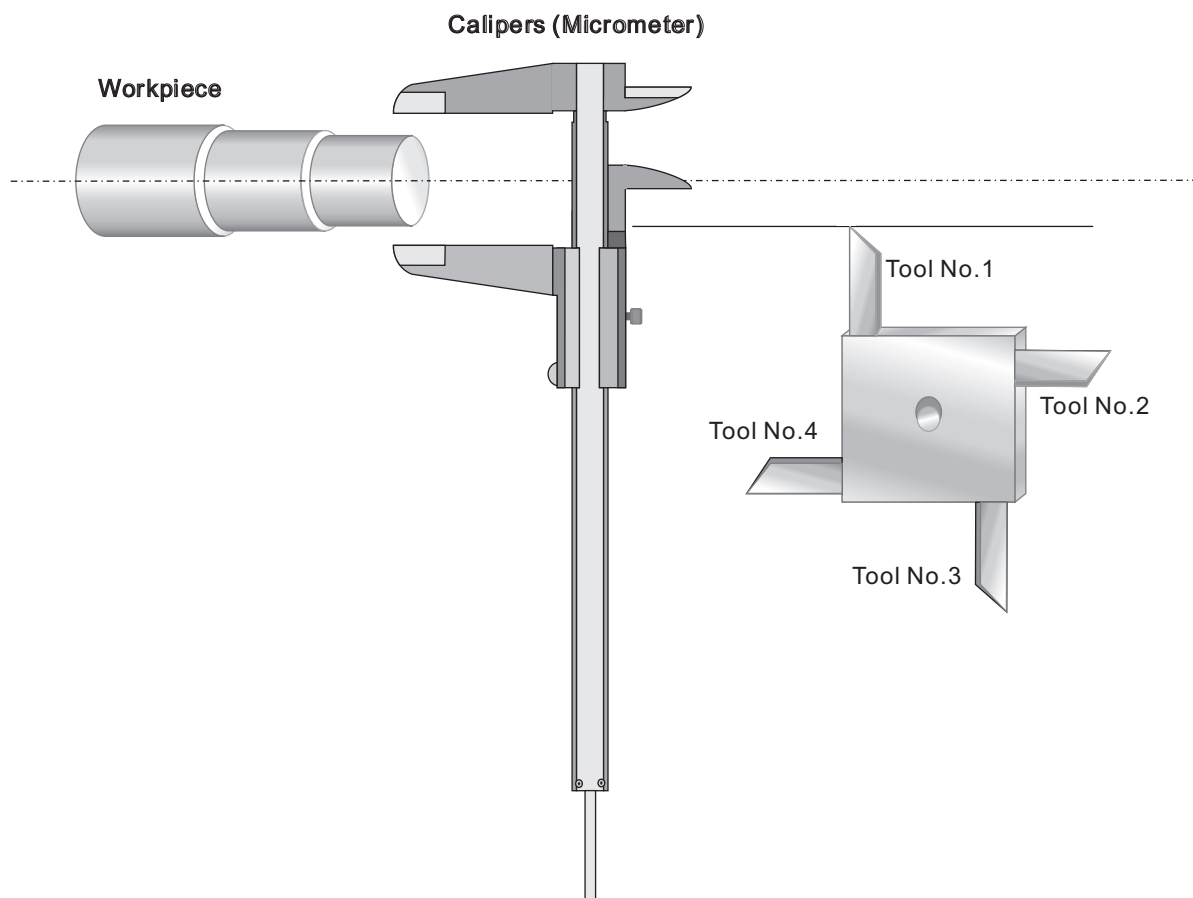
X	25.000
Y	-8.395
Z	40.620

DIA

Move to No.6

X-axis will be double counted.

3. Tool Offset



Tool offset

This is for displaying from end of a tool to the middle point of a workpiece.
To use this function, memorize the length of each tool to a display unit.

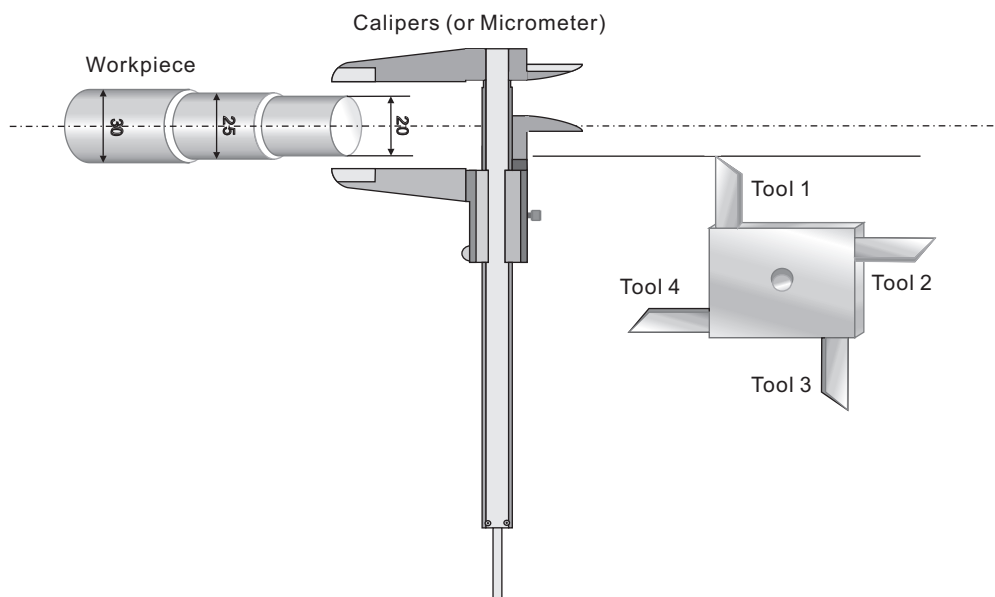


Tool#1→Imitation processing→measuring diameter →input the value

Tool#2

Tool#3

Tool#4



ABS

X 68.530
Y -5.405
Z 18.700
ABS 0

Select ABS function

1 ENT

X 68.530
Y -5.405
Z 18.700
ABS 1

Assign tool#1 to ABS No.1

X 2 0 ENT

Measured diameter value, 20,
of the workpiece.

X 20.000
Y -5.405
Z 18.700
ABS 1

Offset of Tool#1

Do imitation processing with Tool#1.
Then, take off the tool and measure
diameter of the workpiece with a calipers
or micrometer. Input the measured value
to a display unit.

Tool#1 will be set by inputting measured
value, "20".



X 30.080
Y 10.860
Z 22.350
ABS 2

Assign tool#2 to ABS No.2

X 2 5 ENT

X 25.000
Y 10.860
Z 22.350
ABS 2

Offset of Tool#2

Do imitation processing with Tool#2.
Then, take off the tool and measure
diameter of the workpiece with a calipers
or micrometer. Input the measured value
to a display unit.

Tool#2 will be set by inputting measured
value, "25".



X	43060
Y	18860
Z	57200

ABS 3

X 3 0 ENT

X	30000
Y	18860
Z	57800

ABS 3

Assign tool#3 to ABS No.3

Offset of Tool#3

Do imitation processing with Tool#3. Then, take off the tool and measure diameter of the workpiece with a calipers or micrometer. Input the measured value to a display unit.

Tool#3 will be set by inputting measured value, "30".

D INSTALLATION & TROUBLE SHOOTING

C

1. Installation

1) Installation and precaution

函 Display counter should be safely grounded.

刻 Do not put the DRO system around other electrical appliances which could cause electrical noise.

券 Be careful not to let contaminates like lubrication oil and chips flow into the scale.

刷 To insure the highest accuracy possible, install the scales as close as possible to the object being measured or the workplace.

刺 It is strongly recommended to install a protective cover and insure that the reading head can move freely and smoothly.

到 Glass scales can be broken from any shock. Handle with care.

刮 Use the voltage between 110V and 220V.

Required Tools for installation

Electric Drill : ¥3.5, ¥4.3, ¥5.2

Tap : M4, M5, M6

Dial Gauge : 1/100 mm

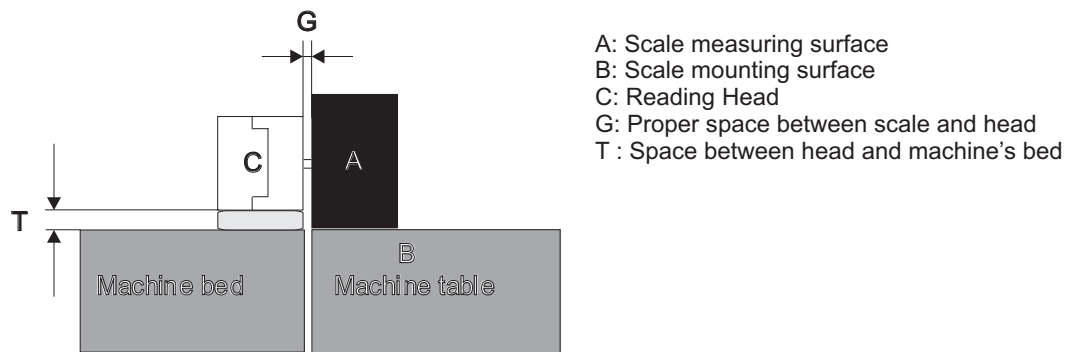
Tap Handle

Screwdriver

Wrench set .

2) Mounting & Accuracy

Mount the unit parallel with machine axis within the following limits:

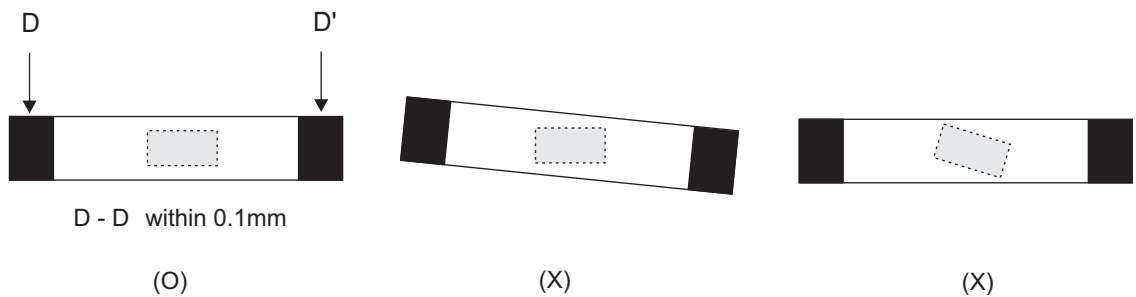
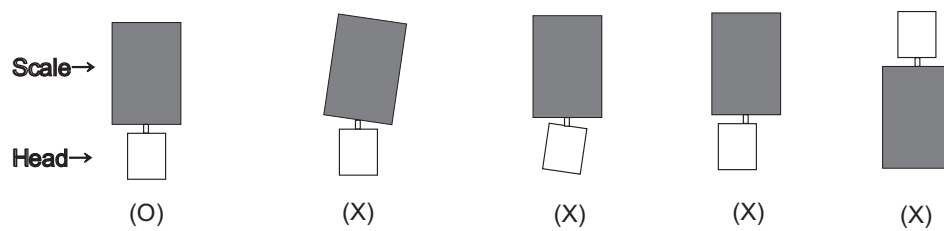
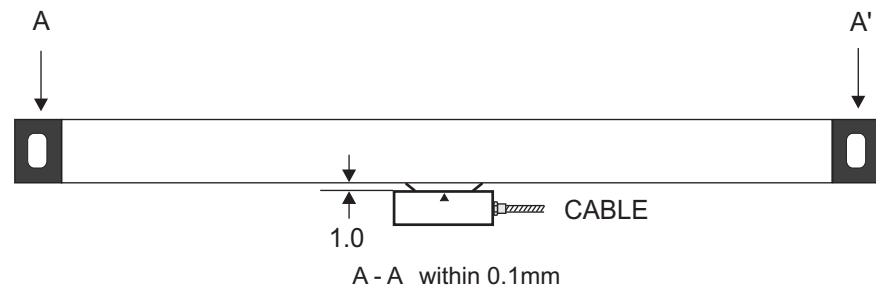


The following gap should be maintained.

Parallel line gap : Below 0.0039" (0.1mm)

T : 0.1378 ϕ (3.5mm) $\pm$ 0.0039 ϕ (0.1mm) ; JSM

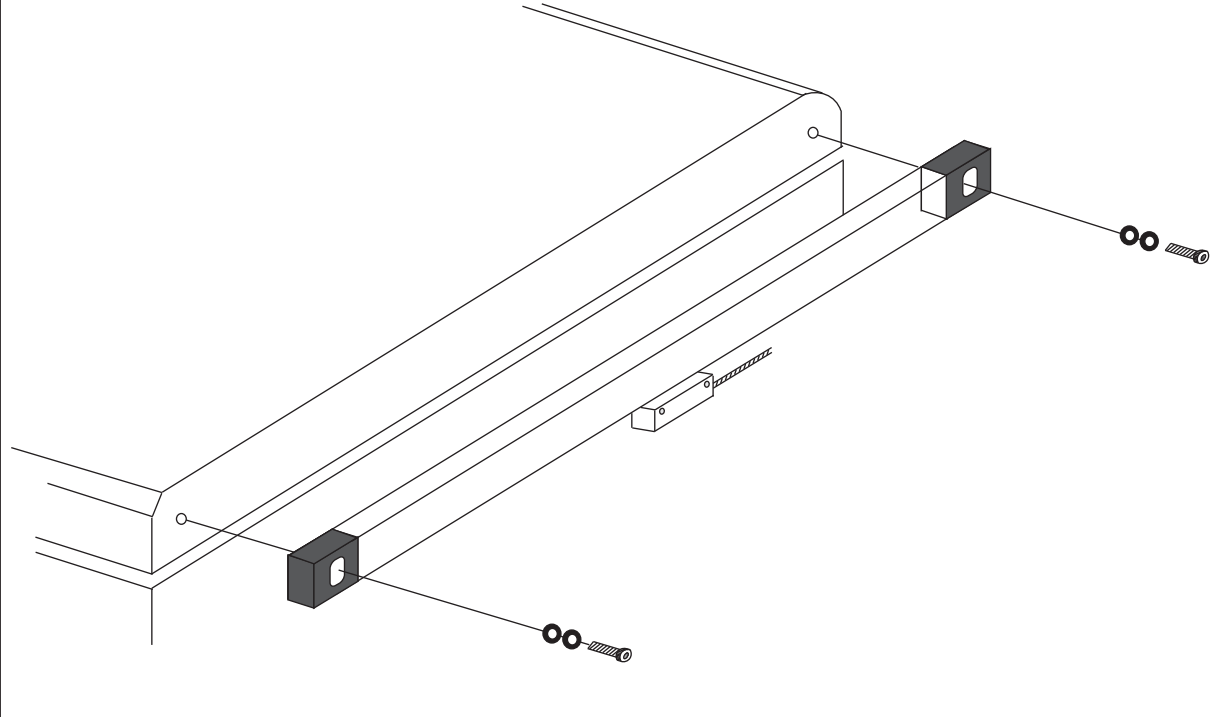
G : 0 ϕ (0mm) $\pm$ 0.0039 ϕ (0.1mm) ; JSS



3) Mounting scale

(1) Positioning, Drilling, Temporary fixing.

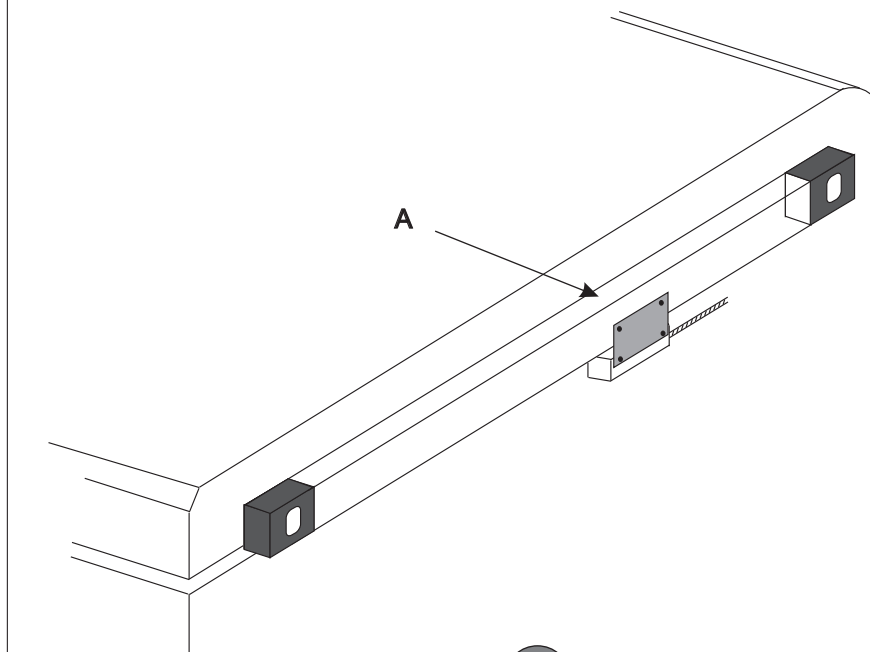
By determining mounting position on mounting surface of machine bed, drill and tap holes. Fix the scale temporarily to the machine table, using the hexagon socket head bolt.



(2) Mounting

Using dial gauge, measure horizontal angle of A.

- 1 Scales over 1000mm, check alignment and if it is fixed in a proper space.
- 1 If the alignment of A don't be measured with Digital Gauge, facing area of alignment mark is parallel in both direction.



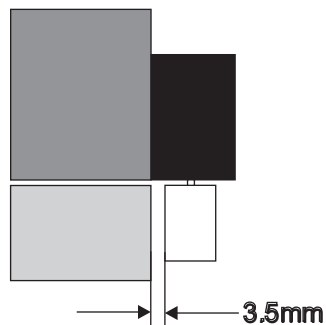
(3) Head carrier Mounting

When the scale is attached directly to the table, the thickness of the attachment should be $0.1378" (3.5\text{mm}) \pm 0.0039" (0.1\text{mm})$.

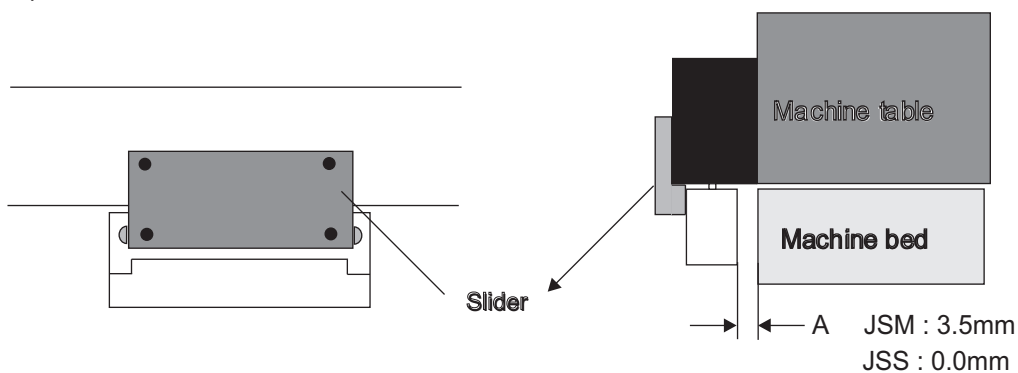
It is recommended to use shim washer for the adjustment of the thickness

±

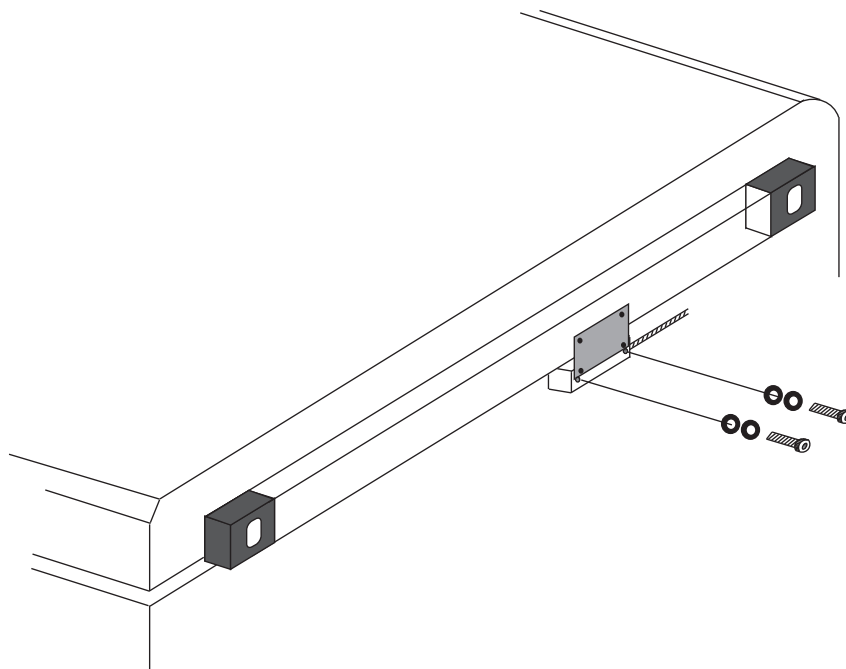
► JSM type



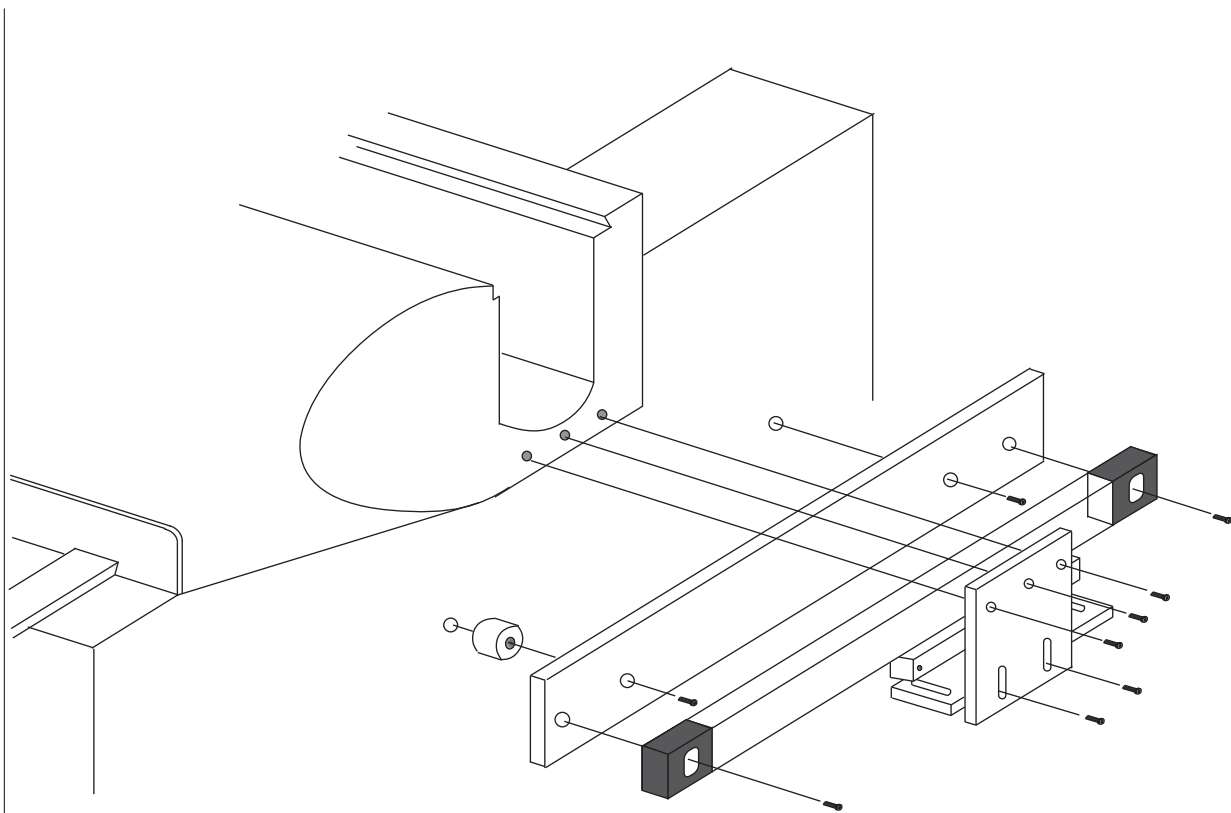
- Remove two screws bolts to slider that fasten head parts so that the head carrier is separated from scale.



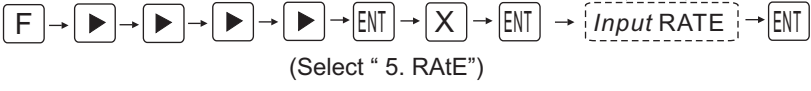
- When ready, move head to the position to be installed, then drill at the position of the bed of a machine.
- Remove slider after installation.



- With a mark at the end of scale as a datum line, gap between head and scale should be equal.

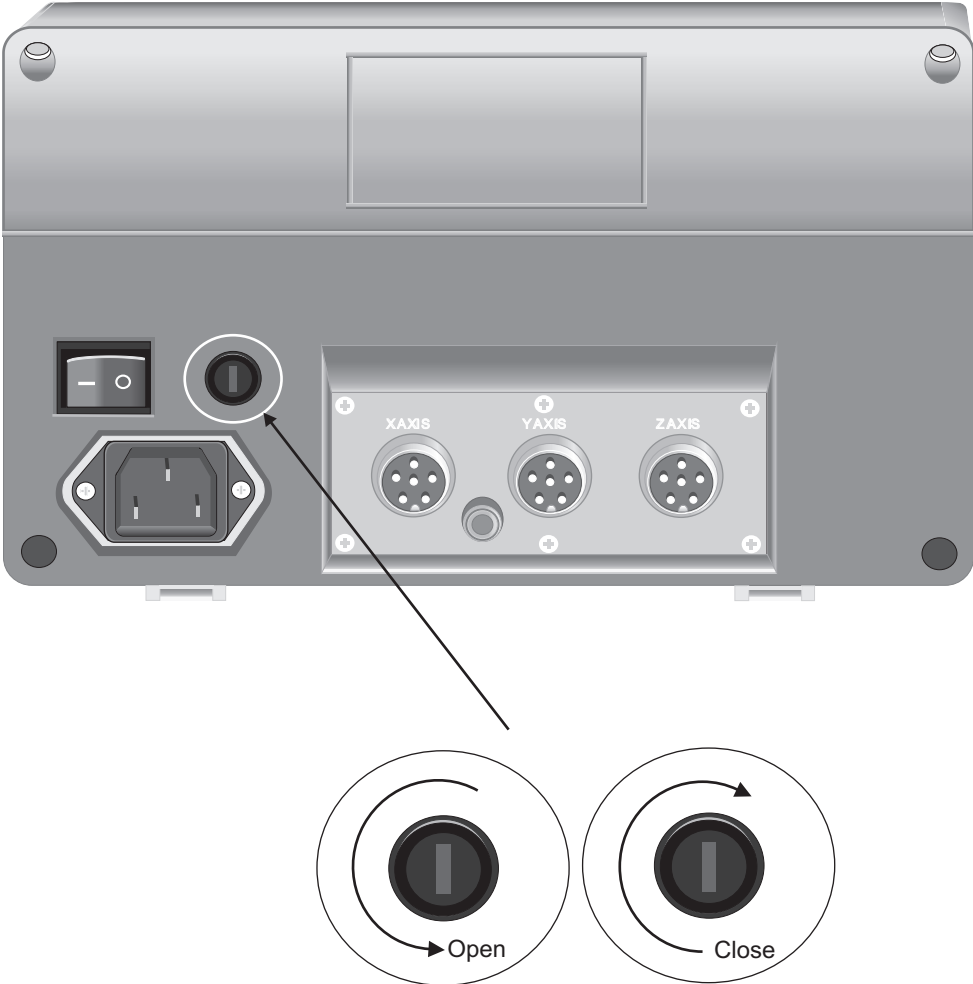


2. Trouble shooring

Trouble	Solution
Power was turned off.	• Make sure  key is turned on. • Make sure main power is on. • Make sure Fuse has blown out • Make sure power corder is connected rightly.
Fuse blows out frequently	• Make sure supping power is stable or not. • Disconnect a scale from the counter and check the connectors. • After checking above, call repairing service.
Power is on but display is turned off	• Cutting fluid or oil can flow into the keyboard. • Disconnect a scale from a counter.
ERROR is shown in the axis window	• Check the connection between a scale and a counter. • Check the ground state of a counter. • Check the fixing bolts are loosen. • Connect the scale with other axis of a counter to see which one is the cause. • Check backlash of the machine. • Check if the scale was broken from being got bent or curved.
Displayed value is fixed when a scale is moving	• Check "RATE" (32p) • Check normal rate is "1000000". • Check the connection of a scale and a counter.
One out of X,Y and Z-axis doesn't work	• Connect the scale with other axis of a counter to see which one is the cause.
DIA lamp is on	• Turn to RAD mode using "Double counting function of lathe" (39p).
Displayed value is double counted	• Check "RATE" (32p). • Check normal rate is "1000000". • Check if DIA lamp is on, then do correction as below (39p)
Difference between real value and measured value Correction of RATE (32p)	• Real distance $\frac{\text{Measured distance}}{\text{Measured distance}} = \text{RATE Correction}$ Ex.1 $\frac{30.0000}{299.100} = 1.003009$ EX.2 $\frac{200.000}{200.050} = 0.999750$  (Select "5. RATE")
Note	• Be careful cutting fluid, oil or dust not to flow into a scale.

※ This product can be modified without previous notice to improve quality.

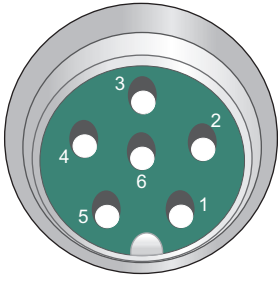
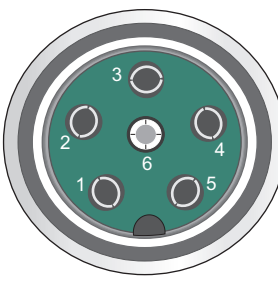
3. Replacing a fuse



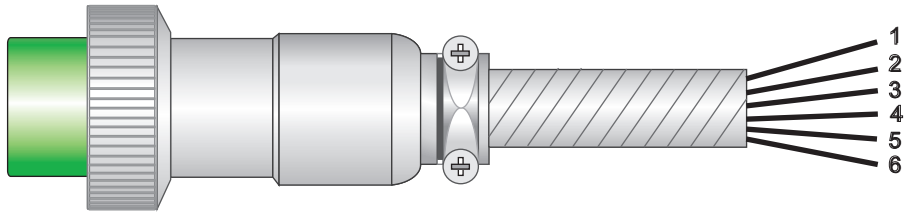
Replacing a fuse, 250V 2A.
Use a - type screw driver

Kinds	Standard
Rated Voltage Fuse	110V ~ 220V 250V, 2A

4. Connector information

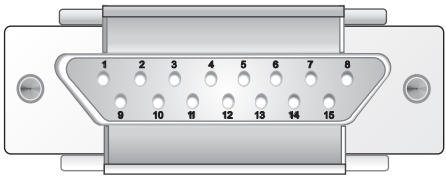
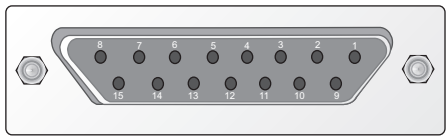
Counter	Scale
	
1 PIN : + (+5V) 2 PIN : A 3 PIN : B 4 PIN : Z 5 PIN : - (0V) 6 PIN : Shield	1 PIN : + (+5V) 2 PIN : A 3 PIN : B 4 PIN : Z 5 PIN : - (0V) 6 PIN : Shield

PIN & Color



PIN	Color	Signal
1 PIN	RED	+ (+5V)
2 PIN	YELLOW	A (+4.2V)
3 PIN	WHITE	B (+4.2V)
4 PIN	GREEN	Z (+0.4V)
5 PIN	BLACK	£(+0V)
6 PIN	BLACK SHIELD	Shield (GND)

PIN for DSC-703EDM Counter

					
Signal cable			803EDM counter		
2 PIN	A	YELLOW	2 PIN	A	WHITE
3 PIN	B	RED	3 PIN	B	GREEN
4 PIN	COM	WHITE	4 PIN	COM	BLACK