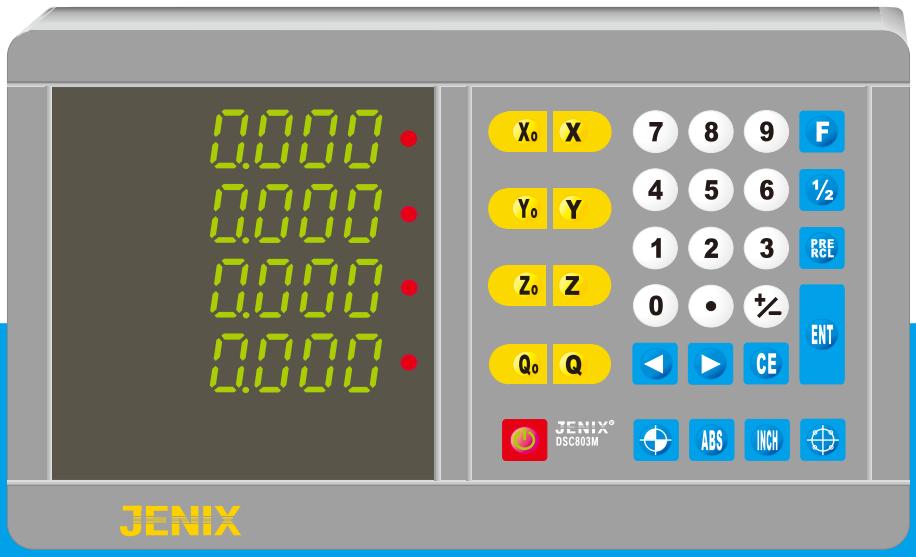
JENIX®
DIGITAL READOUT SYSTEM

CE ISO9001

Digital Counter USER'S MANUAL

DSC800 SERIES



DONG SAHN JENIX CO., LTD.

MANUAL NO. 230221

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Description of DSC800 counter

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Function

Lathe function

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Installation of linear scale and trouble shooting

DC DESCRIPTION 0F DSC-800

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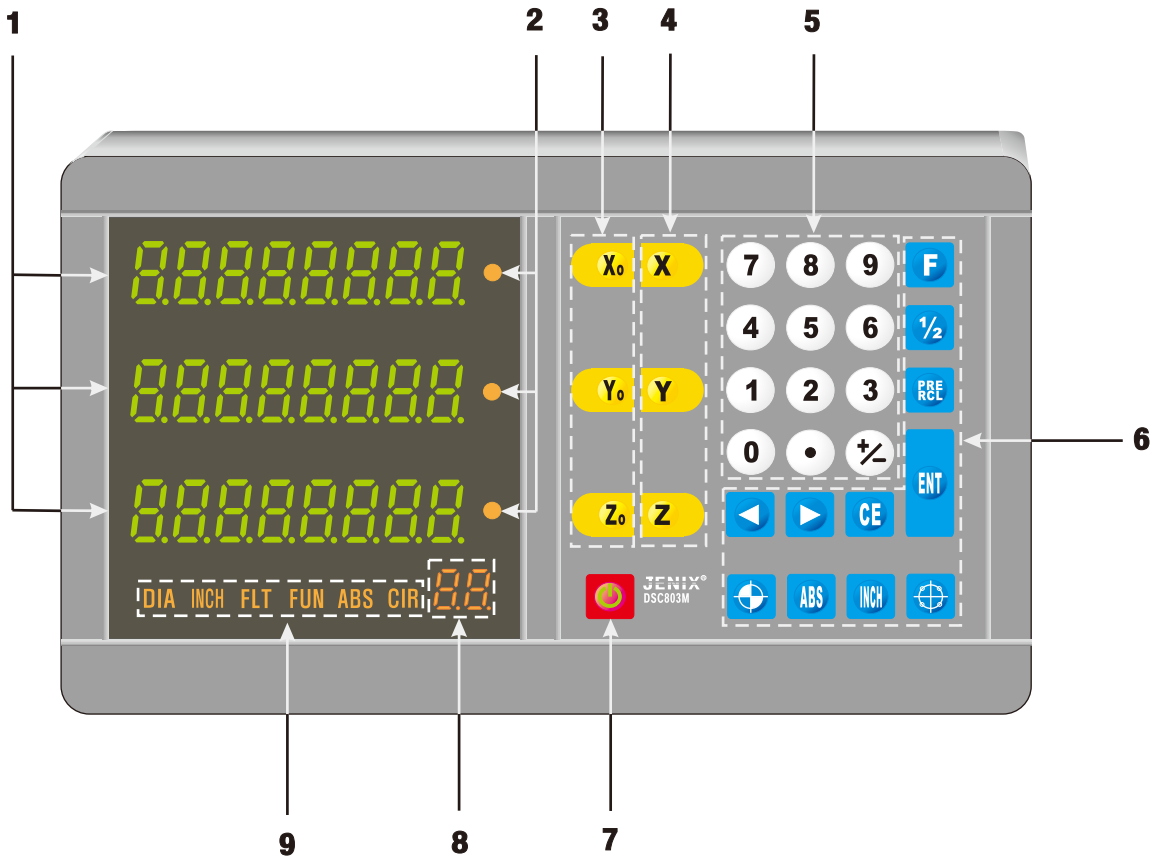
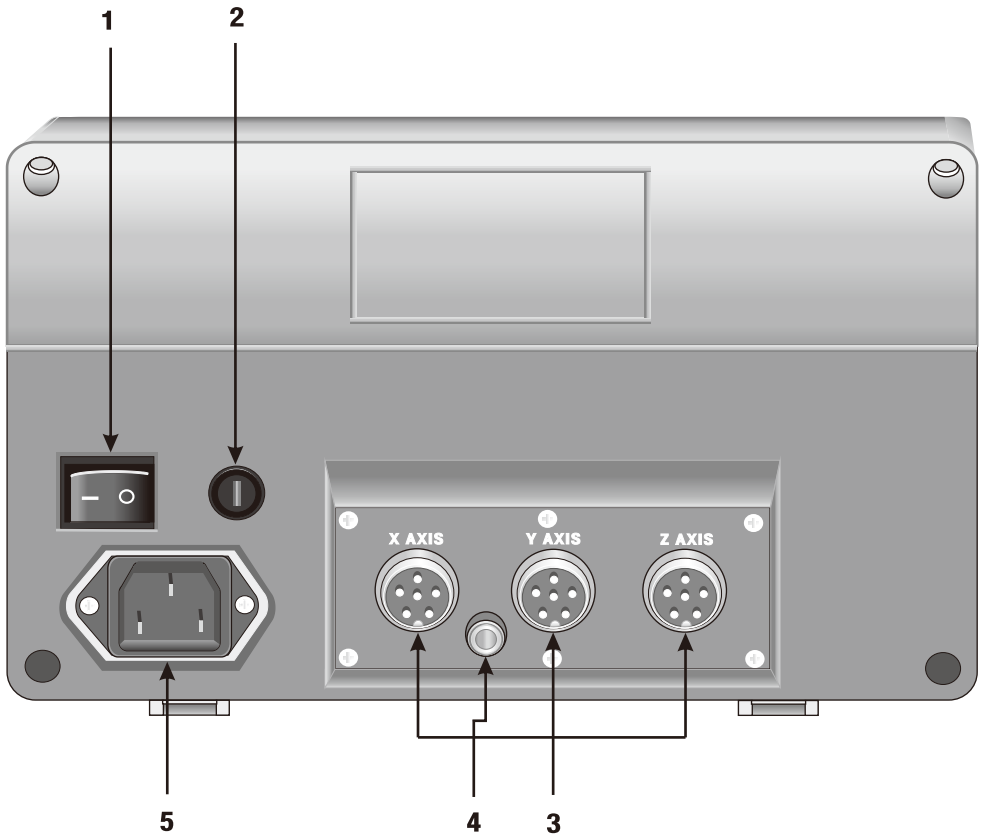


Keys	Descripton
1. Display area	Diplay the values of X, Y and Z axis
2. Axis indication lamp	Lamp will be on when the axis selected
3. Zero set keys	Initializing key
4. Axis indication key	To select the axis
5. Numbers key	0 ~ 9 numbers
6. Function Key	To begin any function, firstly start with “F”
7. 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

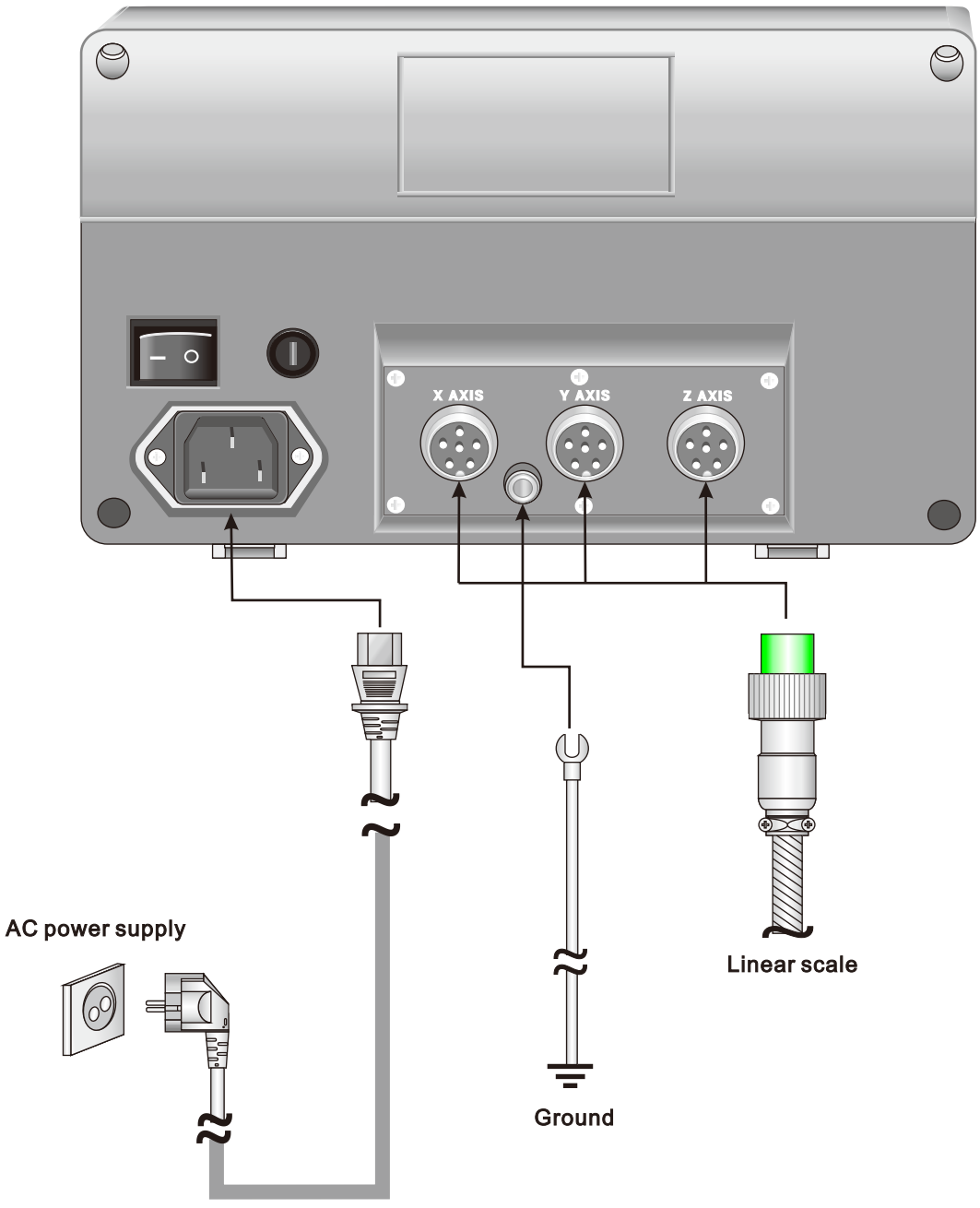
Note) This manual explains every function on the basis of 3-axis display unit (DSC-803).

2. Back Panel



Keys	Descripton
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. Wire connection



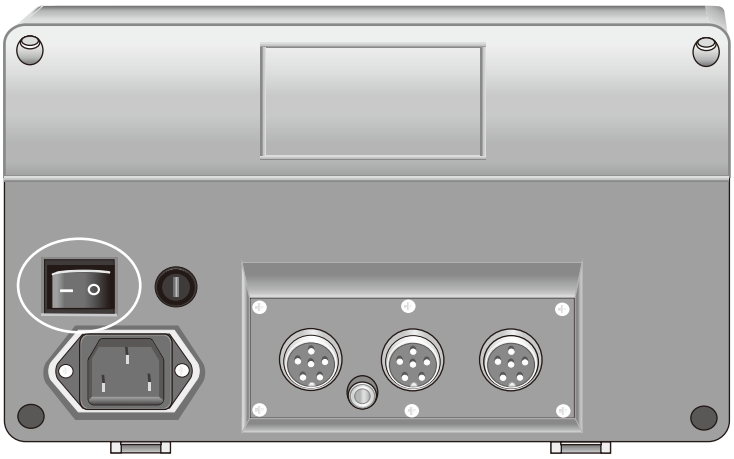
4. Description of buttons

Key	Name	Description
X0 Y0 Z0	Axis zero key	Reset present displayed axis
X Y Z	Axis (indication) key	Select axis
0 ~ 9	Number key	Numbers of 0 ~ 9
•	Dot key	Input the value of decimal point
+/-	+/- key	Changing positive(+) or negative(-) value
ENT	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.
CE	Cancel key	Cancel input processing. Cancel excuting operation. Clear the error.
F	Function key	To use any function, firstly push "F" key
1/2	1/2 key	Divide present value into a half
PRE RCL	Preset Recall	Recall memerized coordinates
ABS	Absolute position	To use ABS at any position
⌖	Bolt hole circle	To use Bolt hole circle function
INCH	Mm / inch	Changing mm / inch
◔	Error key	To find error of a scale
⏻	On / Off key	Turn on / off the FND display

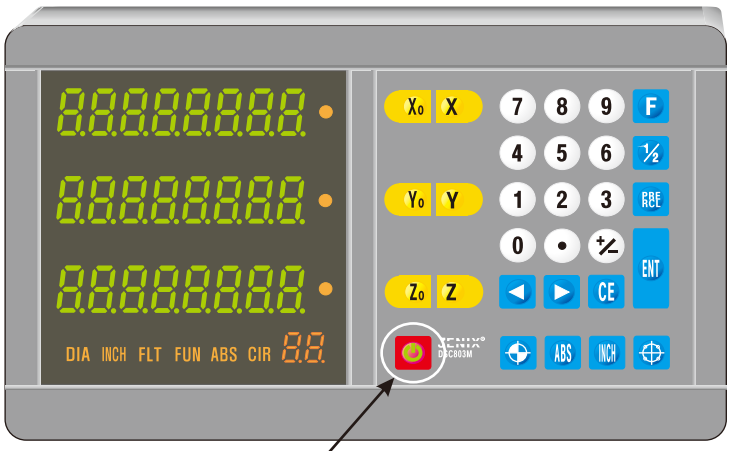
BASIC OPERATION

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

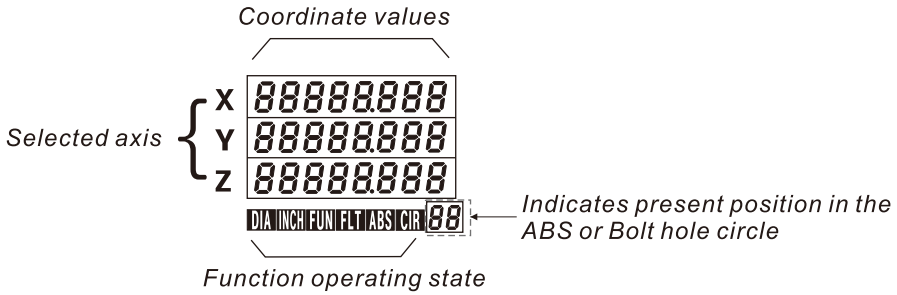


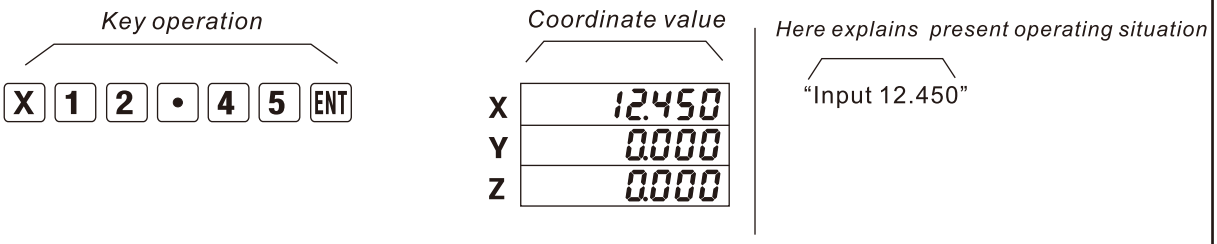
- ON/OFF switch of the front side



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

Explanation of operation	

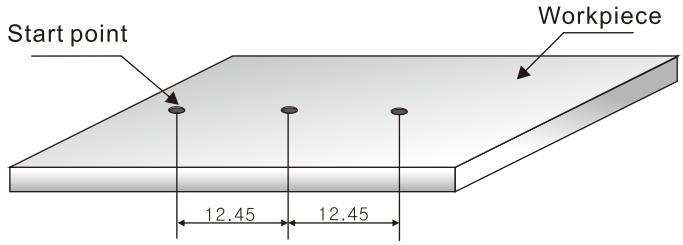




1. Preset

[X] → [Input value] → [ENT]	To input any value and to use the value repeatedly.

Ex. Input value is 12.45 and use it repeatedly.



[X] [1] [2] [•] [4] [5] [ENT]

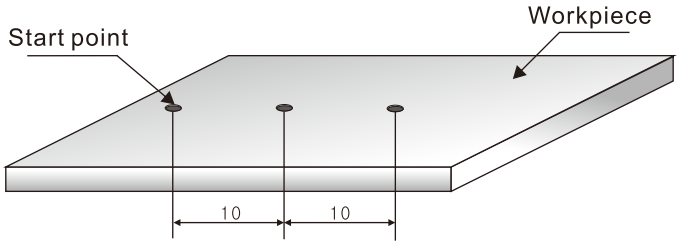
X	12.450
Y	0.000
Z	0.000

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”



[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 displyed

[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	0.000
Y	0.000
Z	0.000

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

[X] → [½]	To divide a value into a half

Ex. To divide “12.400” into a half

Input or recall “12.400”

X	12.400
Y	0.000
Z	0.000

[X] [½]

X	6.200
Y	0.000
Z	0.000

5. inch/mm conversion

[INCH]	To change from mm to inch

Ex.

25.400 mm ↔ 1.000 inch

X	25.400
Y	0.000
Z	0.000

Input “inch” key then INCH lamp is on

[INCH]

X	1.0000
Y	0.0000
Z	0.0000

INCH

Push “inch”key to release, INCH lamp is off

6. INCR/ABS Conversion

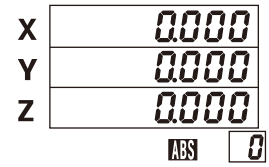
ABS → ▶ / ◀ → ENT

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.

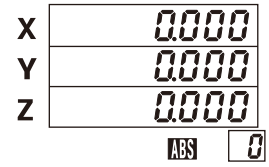
1) Input ABS no.

ABS



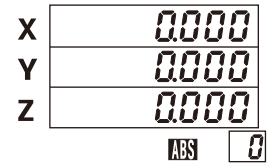
← "Blinking"

Input a number



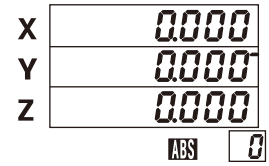
← Input one of 0~99

ENT



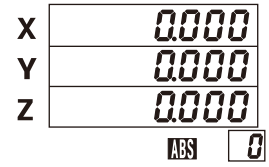
2) input ABS number using ◀ , ▶ key.

ABS

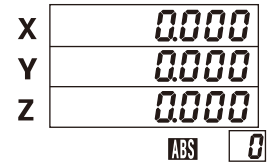


← "Blinking"

▶ / ◀

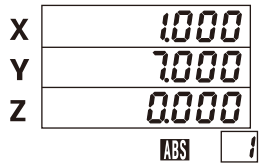


ENT



3) To find preset ABS coordinates in ABS mode

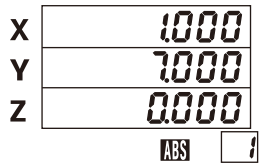
ABS mode (lamp on)



In ABS mode, pre saved ABS number can be found easily using ◄ ► keys.

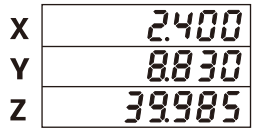
[▶]

[◀]

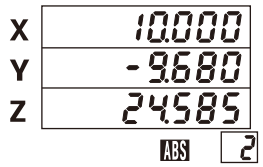


4) To return to normal from ABS mode.

Normal state



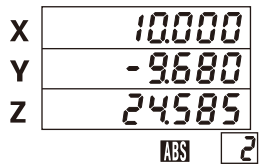
[ABS]



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

← Blinking

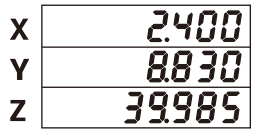
[ENT]



[ABS]

← Blinking

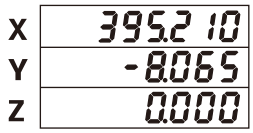
[ABS]



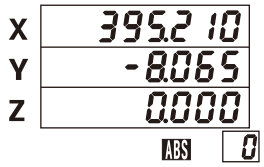
Normal state

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

Normal mode

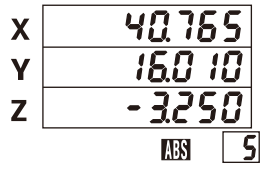


[ABS]



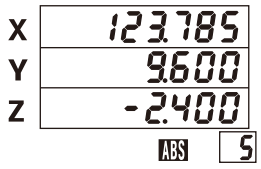
← *Blinking*

[▶] [◀] OR [5]



To find ABS no.5, move [◀] [▶] or directly input 5.

[ENT]

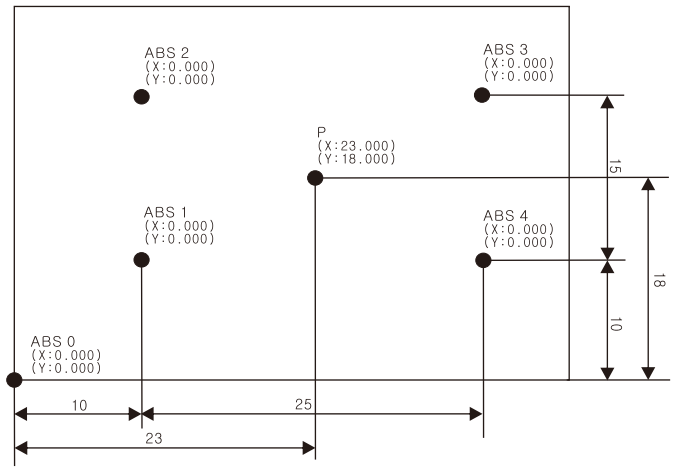


[X] [1] [0] [ENT]

Type "10.000"

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

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



<PIC. 1>

Normal state

X -20.945
Y 13.800
Z 1.000

[X0] [Y0] [Z0]

X 0.000
Y 0.000
Z 0.000

Make each axis zero even in the normal mode.

[ABS]

X -20.945
Y 13.800
Z 1.000
ABS 0

Changing from Normal to ABS mode

←”Blinking

[▶] [◀] OR [0]

X -20.945
Y 13.800
Z 1.000
ABS 0

Move to “0” using ◀ ▶ keys, or type “0”

[ENT]

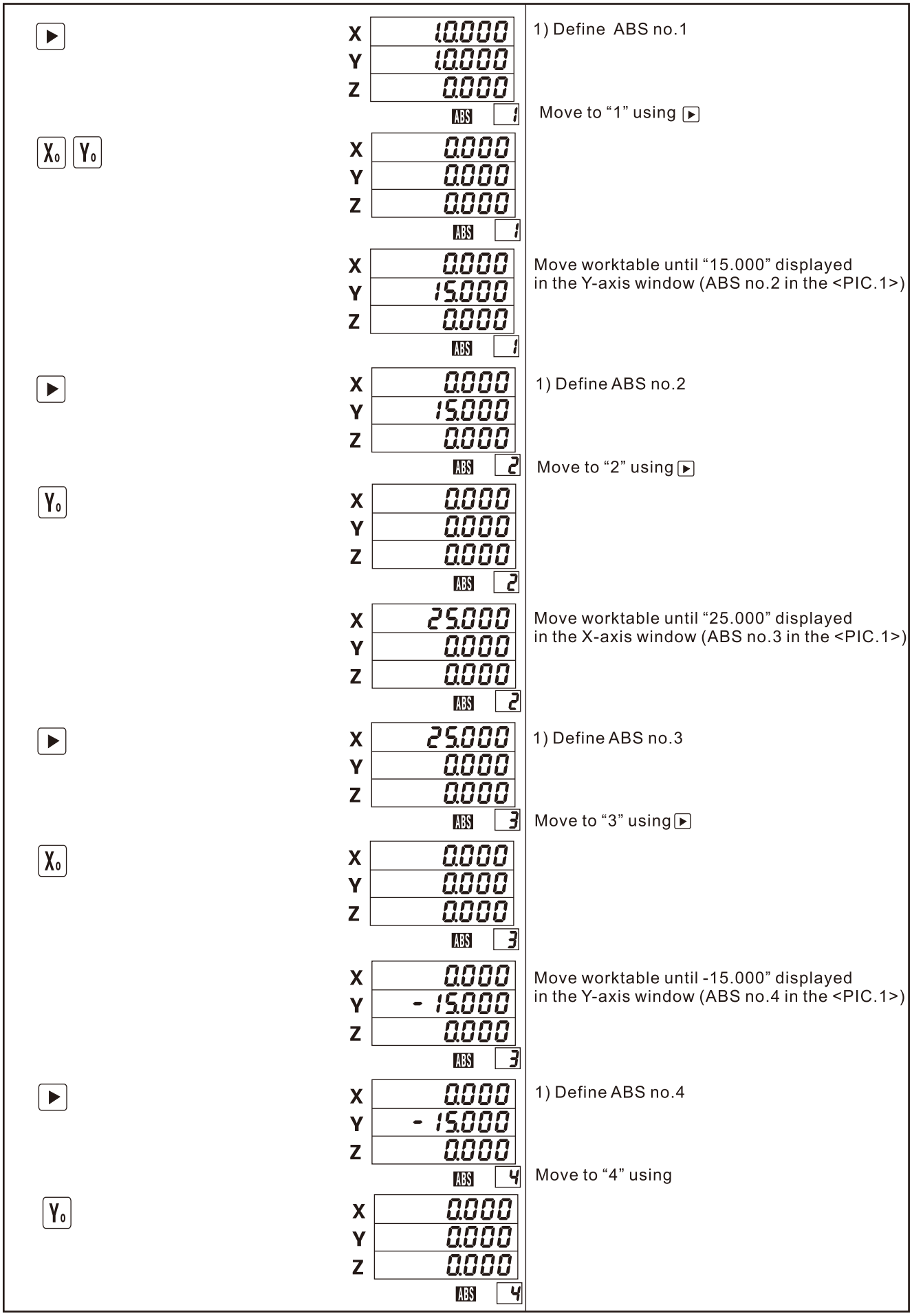
X 0.000
Y 0.000
Z 0.000
ABS 0

[X0] [Y0]

X 0.000
Y 0.000
Z 0.000
ABS 0

X 10.000
Y 10.000
Z 0.000
ABS 0

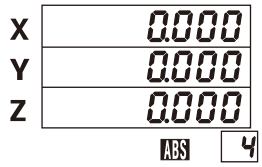
Move worktable until 10.000 displayed in the X and Y axis window.
(see ABS.1 of <PIC.1>)


▶
X 10.000
Y 10.000
Z 0.000
ABS 1
1) Define ABS no.1
Move to “1” using ▶
X0 Y0
X 0.000
Y 0.000
Z 0.000
ABS 1
X 0.000
Y 15.000
Z 0.000
ABS 1
Move worktable until “15.000” displayed
in the Y-axis window (ABS no.2 in the <PIC.1>)
▶
X 0.000
Y 15.000
Z 0.000
ABS 2
1) Define ABS no.2
Move to “2” using ▶
Y0
X 0.000
Y 0.000
Z 0.000
ABS 2
X 25.000
Y 0.000
Z 0.000
ABS 2
Move worktable until “25.000” displayed
in the X-axis window (ABS no.3 in the <PIC.1>)
▶
X 25.000
Y 0.000
Z 0.000
ABS 3
1) Define ABS no.3
Move to “3” using ▶
X0
X 0.000
Y 0.000
Z 0.000
ABS 3
X 0.000
Y - 15.000
Z 0.000
ABS 3
Move worktable until -15.000” displayed
in the Y-axis window (ABS no.4 in the <PIC.1>)
▶
X 0.000
Y - 15.000
Z 0.000
ABS 4
1) Define ABS no.4
Move to “4” using
Y0
X 0.000
Y 0.000
Z 0.000
ABS 4

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

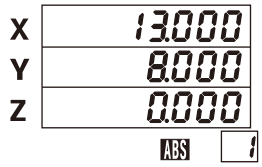
Normal mode

ABS



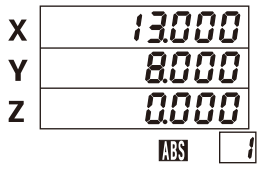
← "Blinking"

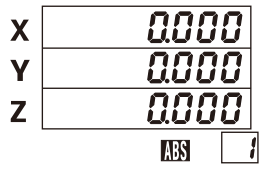
▶ / ◀ / OR / 1



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

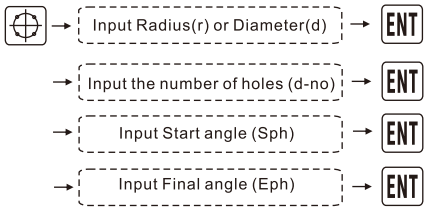
ENT





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

7. Bolt hole circle



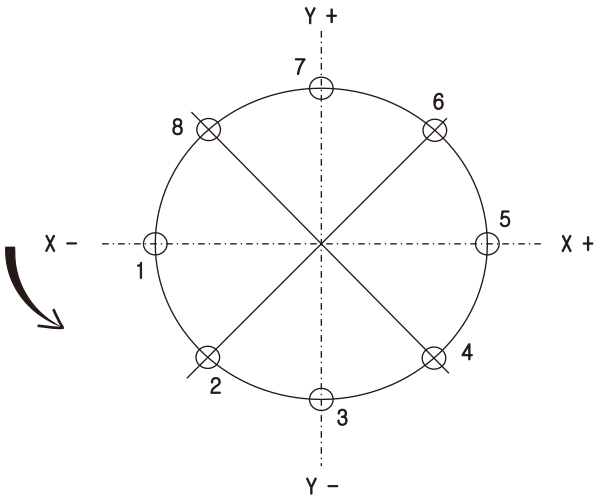
There are 4 factors for Bolt hole circle.
1) Radius (R), or Diameter(d)
2) The number of holes: d-no
3) Start angle: Sph
4) Final angle: Eph

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

X	12.460
Y	-9.845
Z	30.100

[X0] [Y0] [Z0]

X	0.000
Y	0.000
Z	0.000

X	clr rAd
Y	0.000
Z	0.000
	CIR

← Blinking

[1] [0]

X	clr rAd
Y	10.000
Z	0.000
	CIR

Note

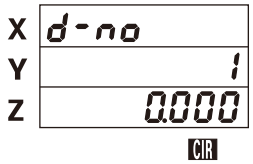
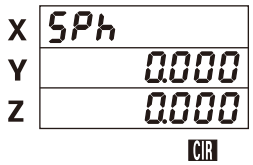
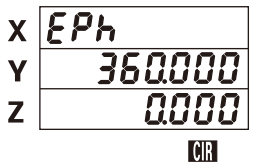
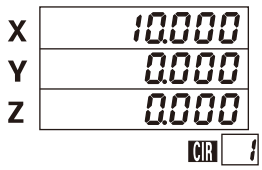
Before setting for bolt hole circle, a datum point should be defined.

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.

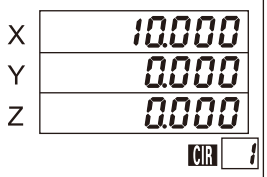
ENT		
4		Input the number of holes, “8”.
ENT		Push ENT key as the start angle is “0˚.
ENT		Final angel will be 360˚, as the start angle is 0˚. Final angle = start angle + 360
ENT		This is the position of first hole.

- NOTE -

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

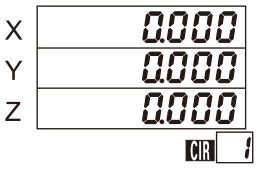
Final angle (˚) = Start angle + 360

▶ An example of bolt hole circle



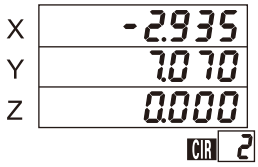
1st hole

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



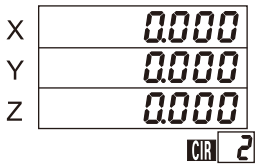
1) Execute hole processing

▶



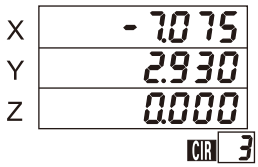
2nd hole

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



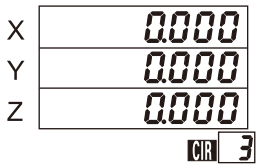
2) Execute 2nd hole processing

▶



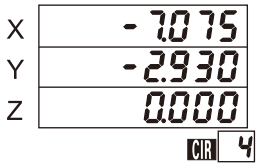
3rd hole

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



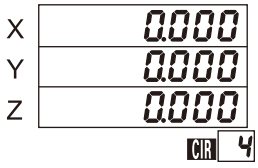
3) Execute 3rd hole processing

▶

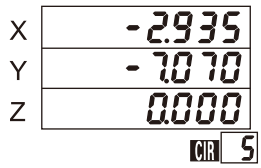
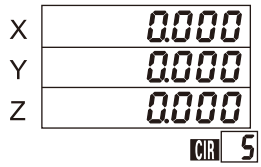
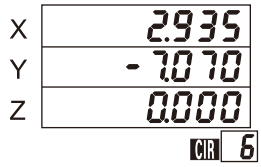
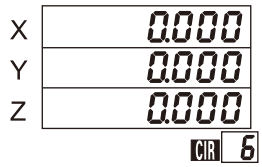
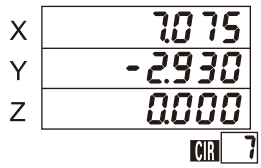
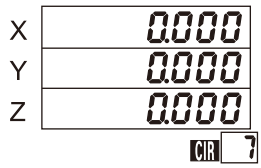
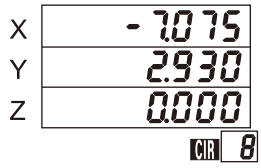
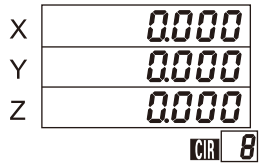


4th hole

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



4) Execute 4th hole processing

▶		5th hole
Move worktable until 0.000 displayed in the X & Y -axis window.		5) Execute 5th hole processing
▶		6th hole
Move worktable until 0.000 displayed in the X & Y -axis window.		6) Execute 6th hole processing
▶		7th hole
Move worktable until 0.000 displayed in the X & Y -axis window.		7) Execute 7th hole processing
▶		8th hole
Move worktable until 0.000 displayed in the X & Y -axis window.		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 ILATE
Y 0.000
Z 0.000

FUN

▶

X 2C IrcLE
Y 0.000
Z 0.000

FUN

ENT

X 1AH IS HY
Y 0.000
Z 0.000

FUN

ENT

X 0.000
Y 0.000
Z 0.000

1). Setting as X & Z-axis

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

F

X ILATE
Y 0.000
Z 0.000

FUN

▶

X 2C IrcLE
Y 0.000
Z 0.000

FUN

ENT

X 1AH IS HY
Y 0.000
Z 0.000

FUN

▶

X 2AH IS HZ
Y 0.000
Z 0.000

FUN

ENT

X 0.000
Y 0.000
Z 0.000

3). Setting as Y & Z-axis

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

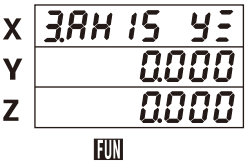
F

▶

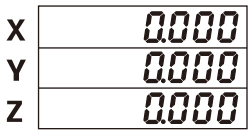
ENT

▶

▶



ENT



4). Setting as Radius & Diameter

F → ▶ → ENT → ▶ → ▶ → ▶ → ENT	Only available in DSC-802, 803, 804 display unit.

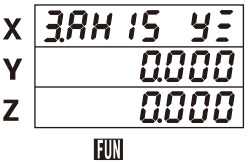
F

▶

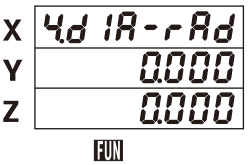
ENT

▶

▶

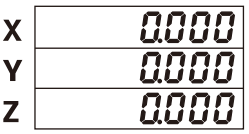


▶



Changing radius ↔ diameter
(Bolt hole circle)

ENT



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.

	X 0.000 Y 0.000 Z 0.000 FLT	
There is no scale connected in X-axis of a display unit.	X --oPEn-- Y 0.000 Z 0.000 FLT	This means cable of a scale is cut or disconnected.
	X Err r 15 Y 0.000 Z 0.000 FLT	Measured value error due to dirt or foreign body in a scale. Measured value error due to damage or scratch of a glass scale
Ex. To remove error message, push CE key		
	X Err r 15 Y 42.715 Z 1.360 FLT	
CE	X 20.700 Y 42.715 Z 1.360 FLT	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 operaion 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.

FUNCTION

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)

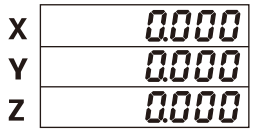
ENT

X

ENT

5

ENT



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

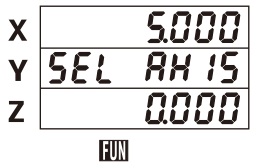
F → ▶ → ▶ → ENT → X → ENT → 1 → ENT	After applying new resolution, 0.000 will be displayed. Resolution should be set according to the scale's resolution

F ▶ ▶
(Double)

ENT

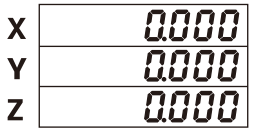
X

ENT



1

ENT



2) 5/10000mm (3.ScALE)
(0.00002 inch)

F → ▶ → ▶ → ENT → X → ENT → 0 → • → 5 → ENT	After applying new resolution, 0.00000 will be displayed. The resolution should be same as its scale's.

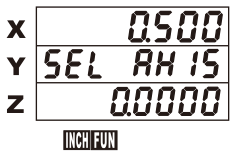
F ▶ ▶ (Double)

ENT

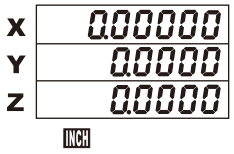
X

ENT

0 • 5



ENT



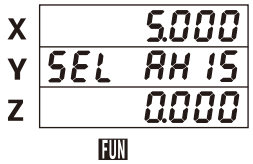
3) 5/100mm (3.ScALE)
(0.002 inch)

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)

ENT

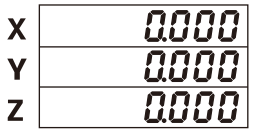
X



ENT

5 0

ENT



4) 1/100mm (3.ScALE)

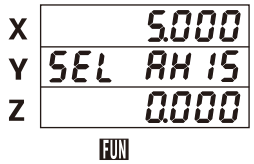
(0.0004 inch)

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)

ENT

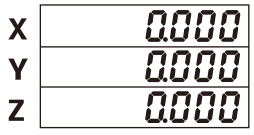
X



ENT

1 0

ENT



2. Changing direction (4.dIr)

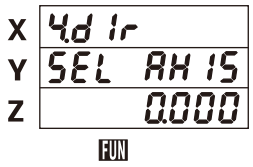
F → ▶ → ▶ → ▶ → ENT → X → ▶ / ◀ → ENT

Processing direction can be changed as below

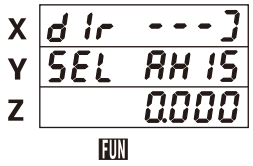
Left (+), Right(-) → Left (-), Right (+)

F ▶ ▶ ▶ (3 times)

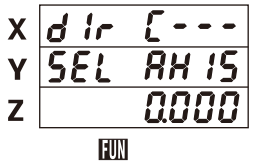
ENT



X



▶ / ◀



ENT

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)

X 5.rAtE
Y 0.000
Z 0.000
FUN

ENT

X 5.rAtE
Y SEL AH 15
Z 0.000
FUN

X

X 1.000000
Y SEL AH 15
Z 0.000
FUN

ENT

X 1.000000
Y SEL AH 15
Z 0.000
FUN

Input RATE

X 1.000000
Y SEL AH 15
Z 0.000
FUN

Input “ 1.000000” as a rate value

ENT

X 0.000
Y 0.000
Z 0.000

Correct or Compensation

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

Ex. 1

$$\frac{\text{Real distance (100.000)}}{\text{Measured distance (100.100)}} = 0.999000$$

Ex. 2

$$\frac{\text{Real distance (100.000)}}{\text{Measured distance (099.900)}} = 1.001001$$

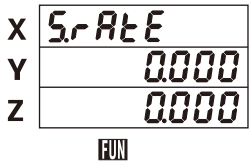
REF.

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

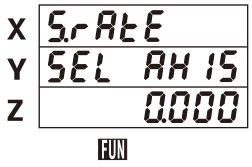
Ex.3 Real distance = 100mm
Measured distance = 100.4mm

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

[F] [▶] [▶] [▶] [▶] (4 times)



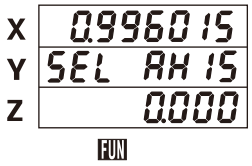
[ENT]



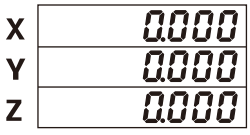
[X]

[ENT]

[0] [•] [9] [9] [6] [0] [1] [5]



[ENT]



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)	X 7rESEt Y 0.000 Z 0.000 FUN	Move to No.7
ENT	X 1rSt Abs Y 0.000 Z 0.000 FUN	
ENT	X 1rSt Abs Y --InIt-- Z 0.000 FUN	
	X 0.000 Y 0.000 Z 0.000	

2) Program Reset (Delete all saved data)

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → ▶ → ENT	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

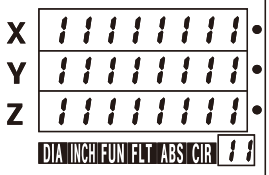
F ▶ ▶ ▶ ▶ ▶ ▶ (6 times)	X 7rESEt Y 0.000 Z 0.000 FUN	Move to No.7
ENT	X 1rSt AbS Y 0.000 Z 0.000 FUN	
▶	X 2rSt ALL Y 0.000 Z 0.000 FUN	
ENT	X 2rSt ALL Y --InIt-- Z 0.000 FUN	
	X 0.000 Y 0.000 Z 0.000	

5. Testing FND (8.tESt)

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → CE	Check FND (Flexible Numeric Display)

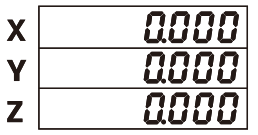
F ▶ ▶ ▶ ▶ ▶ ▶ ▶ (7 times)

Move to No.8



During the test, all of the numbers changing from 1 to 8. This is repeated 3 times.

CE



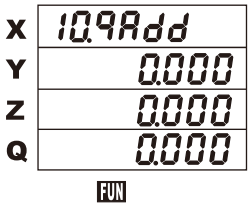
To quit testing, push CE key.

6. Adding up Z & Q axes(10. qAdd)

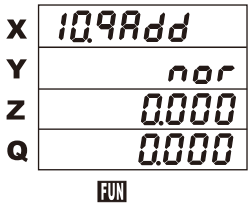
F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → ▶ → ENT

- The added up value shows in Z-axis window
- To escape from this function , select “nor” (normal) at the 3rd step

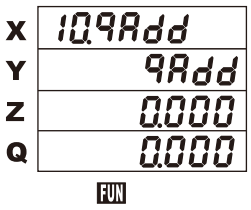
F ▶ ▶ ····· ▶ (9 times)



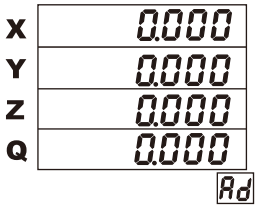
ENT



▶ / ◀



ENT

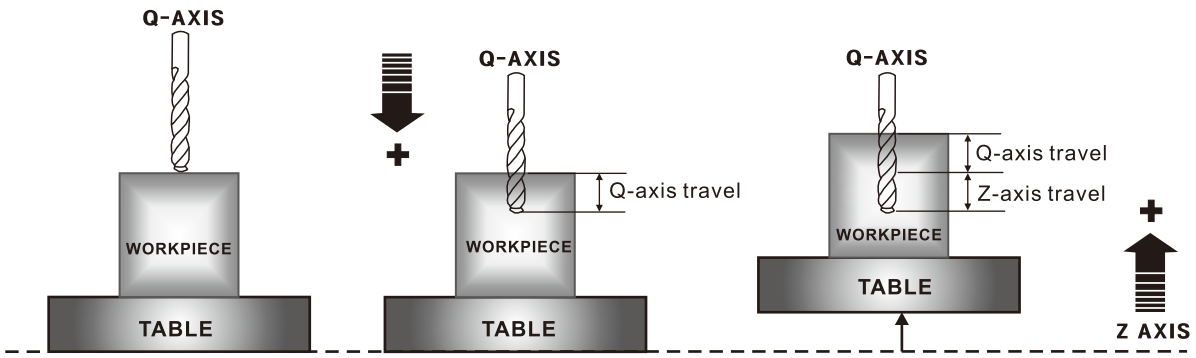


Added up value shows in Z-axis window.

“Ad” will be displaying when in add-up mode.

⚠ Notice

When Q-axis moves **down**, and Z-axis moves **up**,
their directions must be **same** as +/+ or -/-.



- **Changing directions** (refer to the page3-7)

Z-axis: F → ▶ → ▶ → ▶ → ENT → Z → ▶ (or ◀) → ENT

Q-axis: F → ▶ → ▶ → ▶ → ENT → Q → ▶ (or ◀) → ENT

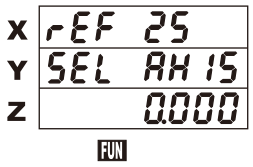
7. Pitch Setting for Magnetic scale

1) MSOW type

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → X → ▶ → ENT	MSOW type Magnetic Scale

F ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ (8 times) → ENT

X

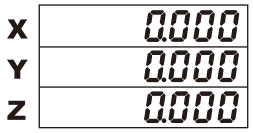


▶ ◀

Set the period(pith) to 5mm

※ There are only two options here: 2mm or 5mm

ENT



⚠ Notice

- Factory setting is 25mm (for optical glass scale).
- In case of magnetic scale, MSOW is to be 5mm and MSS is to be 2mm.

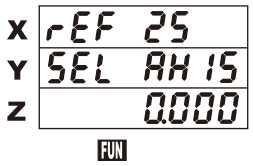
2) Pitch setting for MSS type

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → X → ▶ → ▶ → ENT

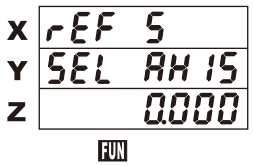
For MSS type only

F ▶ ▶ ▶ ▶ ▶ ▶ ▶ ▶ (8 times) → ENT

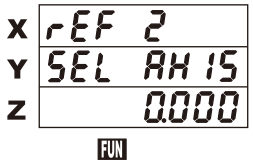
X



▶ ◀

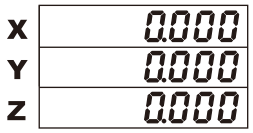


▶ ◀



Set the period(pith) to 2mm

ENT



⚠ Notice

- Factory setting is 25mm (for optical glass scale).
- In case of magnetic scale, MSOW is to be 5mm and MSS is to be 2mm.

8. Vibration proof function

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶
→ ▶ → ▶ → ▶ → ENT → ▶ → ENT

F ▶ ▶ ····· ▶
(10 times)

X	1.05c
Y	0.000
Z	0.000

FUN

ENT

X	1.05c
Y	o5c oFF
Z	0.000

FUN

▶ }
◀ }

X	1.05c
Y	o5c on
Z	0.000

FUN

ENT

X	0.000
Y	0.000
Z	0.000

9. Displaying 0.1or 0.01 unit from 0.001/0.005 (diSP: 0.000→ 0.00 or 0.0)

F → ▶ → ▶ → ▶ → ▶ → ▶ → ▶ → ▶
→ ▶ → ▶ → ▶ → ▶ → ENT → X → ENT
→ *input 10 or 100* → ENT

- when scale resolution is 0.001 or 0.005, make the display 0.0 or 0.00
- when scale resolution is 0.01, make the display 0.0
- but original scale resolution is not changed at all.

* original factory setting is 5/1000 (mm).

- show the display 0.01 unit

F ▶ ▶ • • • • • • ▶ (11 times)

X	12.d 15P
Y	0.000
Z	0.000

FUN

ENT

X	12.d 15P
Y	SEL AH 15
Z	0.000

FUN

X ENT

X	5.000
Y	SEL AH 15
Z	0.000

FUN

1 0 ENT

X	0.00
Y	0.000
Z	0.000

- show the display 0.1 unit

F ▶ ▶ • • • • • • ▶ (11 times)

X	12.d 15P
Y	0.000
Z	0.000

FUN

ENT

X	12.d 15P
Y	SEL AH 15
Z	0.000

FUN

X ENT

X	5.000
Y	SEL AH 15
Z	0.000

FUN

1 0 0 ENT

X	0.0
Y	0.000
Z	0.000

13. S-Type : Rotary encoder setting

(1) & (2) are necessary but (3) is optional.

(1) Linear ⟶ Rotary

[F] → 13 (or [▶] x 12 times) → [ENT] → [X] (or other axis) → [ENT] → [▶] → [ENT]

(2) input "PPR"

[F] → 3 (or [▶] x 2 times) → [ENT] → [X] (or other axis) → [ENT] → *input PPR* → [ENT]

(3) changing decimal point (optional)

[F] → 12 (or [▶] x 11 times) → [ENT] → [X] (or other axis) → [ENT] → *input* "100"(x.x) → [ENT]
or "10"(x.xx)

(1) Linear ⟶ Rotary

[F] → 13
(or [▶] x 12 times)

X 13.S-tYPE
Y 0.000
Z 0.000
FUN

[ENT]

X 13.S-tYPE
Y SEL AH 15
Z 0.000
FUN

[X] [ENT]

X L InEAr
Y SEL AH 15
Z 0.000
FUN

[▶]

X rotAr Y
Y SEL AH 15
Z 0.000
FUN

[ENT]

X 0.000
Y 0.000
Z 0.000

(2) input "PPR"

[F] → 3
(or [▶] x 2 times)

X 3.5cALE
Y 0.000
Z 0.000
FUN

[ENT]

X 3.5cALE
Y SEL AH 15
Z 0.000
FUN

[X] [ENT] *"5.000" flickering*

X 5.000
Y SEL AH 15
Z 0.000
FUN

input PPR
(2500 for example)

* PPR: Pulse Per Revolution

X 2500.000
Y SEL AH 15
Z 0.000
FUN

[ENT]

X 0.000
Y 0.000
Z 0.000

(3) changing decimal point (digits)

[F] → 12
(or [▶] x 11 times)

X 12.d 1SP
Y 0.000
Z 0.000
FUN

[ENT]

X 12.d 1SP
Y SEL AH 15
Z 0.000
FUN

[X] [ENT]

X 5.000
Y SEL AH 15
Z 0.000
FUN

[1] [0] [ENT]
([1] [0] [0] [ENT] will display 0.0)

X 0.00
Y 0.000
Z 0.000

To change Rotary ⟶ Linear do the reverse process. Change from Rotary to Linear by F13.

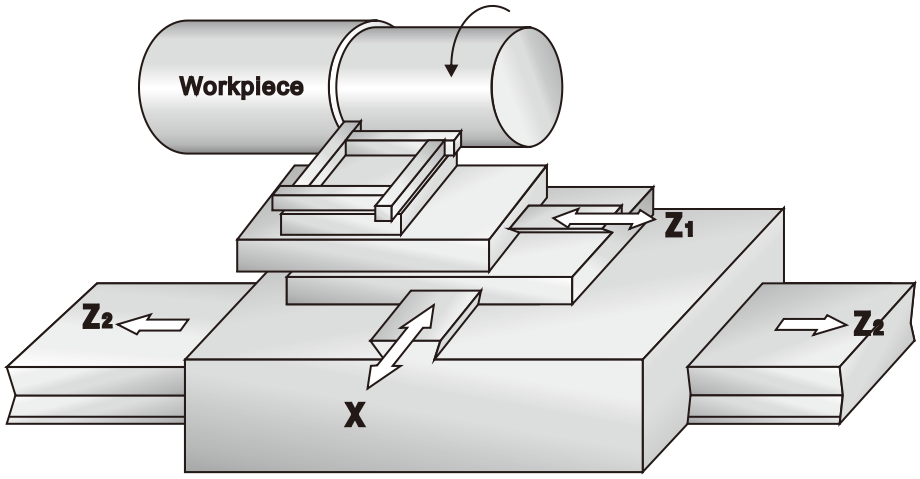
It is also necessary to change resolution by F3, 1 for 1/1000mm and 5 for 5/1000mm.

▶ Factory setting is "Linear". When the display is initialized, this mode will go back to "Linear".

LATHE FUNCTION

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 Y0, Z-axis is also reset automatically.
- Bolt hole circle doesn't work.

F	X 1LAtHE Y 0.000 Z 0.000 FUN	
ENT	X 1LAtHE Y nor Z 0.000 FUN	
▶ / ◀	X 1LAtHE Y LAtHE Z 0.000 FUN	NOR ↔ LATHE by ▶ ◀
ENT	X 0.000 Y 0.000 Z LAtHE	

Ex. Summing present values

	X -23.600 Y 41.260 Z 65.085	
F	X 1LAtHE Y nor Z 65.085 FUN	
ENT	X 1LAtHE Y nor Z 65.085 FUN	
▶ / ◀	X 1LAtHE Y LAtHE Z 65.085 FUN	
ENT	X -23.600 Y 106.345 Z LAtHE	Result from summing Y, Z-axis shows in the Z-axis window

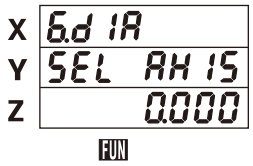
2. Double Counting Function (6.dIA)

F → ▶ → ▶ → ▶ → ▶ → ▶ → ENT → X → ▶ → ENT	Select double counting function, one axis counts double. (In working with a lathe, diameter is necessary)

F ▶ ▶ ▶ ▶ ▶ (5 times)

Move to No.6

ENT

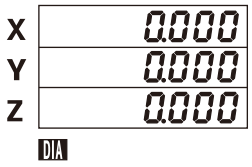


X

▶ }
◀ }

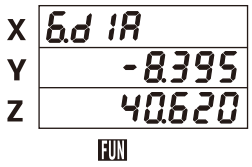
X-axis will be double counting.
DIA ↔ RAD by ◀ ▶

ENT



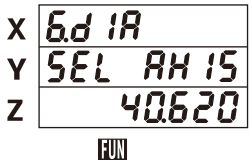
Ex. To set double counting function (by diameter) for X-axis.

F **▶** **▶** **▶** **▶** **▶** (5 times)



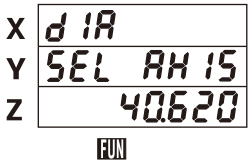
Move to No.6

ENT

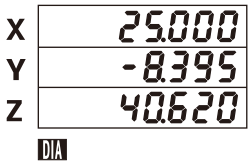


X

▶ **◀**

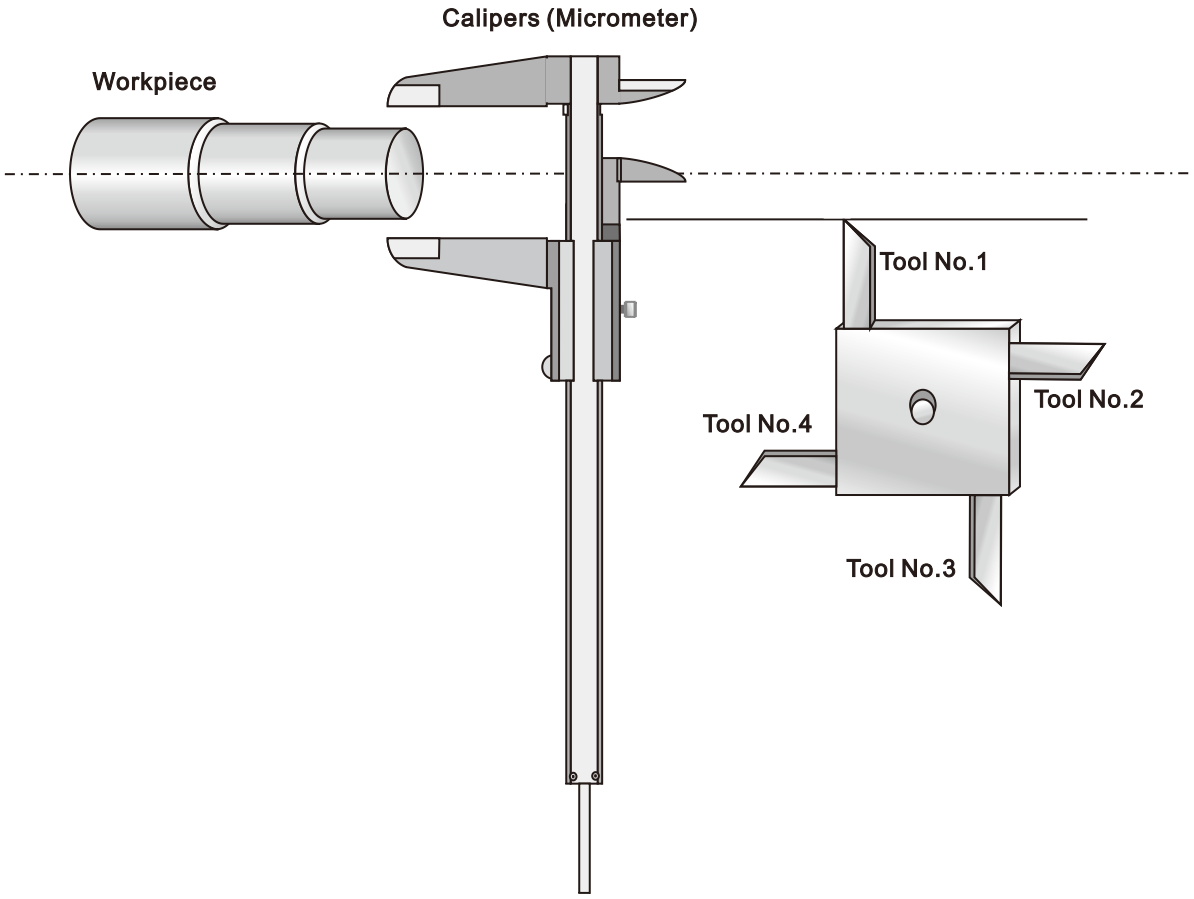


ENT



X-axis will be double counted.

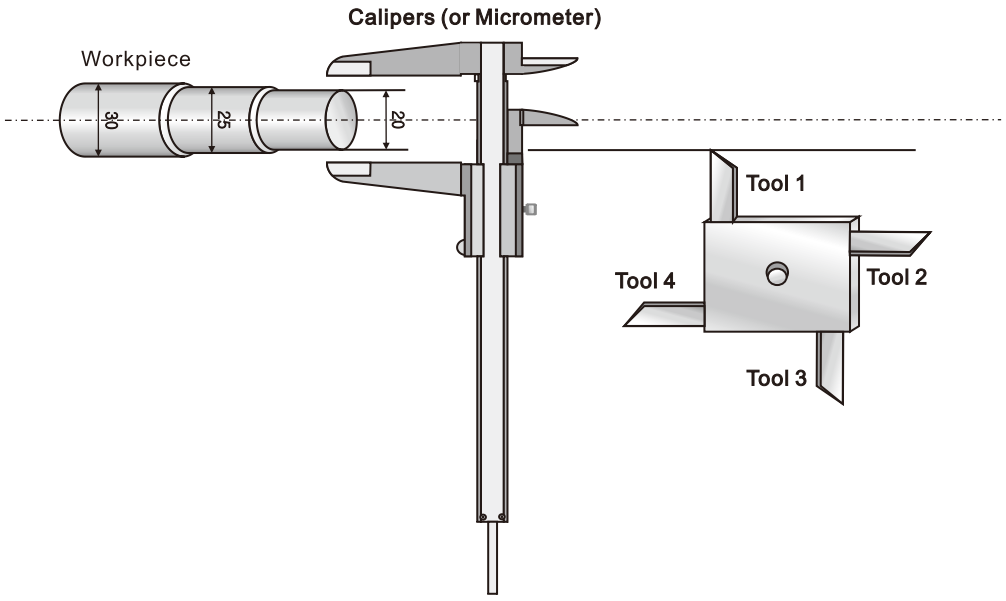
3. Tool Offset



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.

Ex. Tool#1→Imitation processing→measuring diameter →input the value
Tool#2
Tool#3
Tool#4



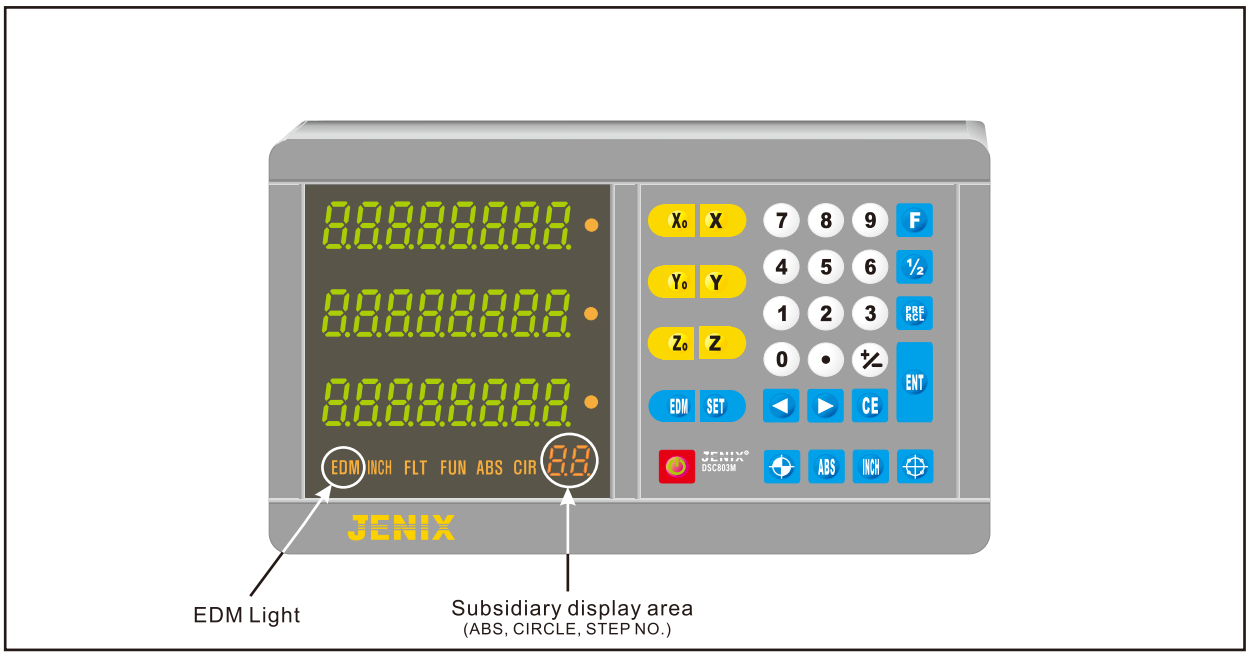
ABS	X 68.530 Y -5.405 Z 18.700 ABS 0	Select ABS function
1 ENT	X 68.530 Y -5.405 Z 18.700 ABS 1	Assign tool#1 to ABS No.1
X 2 0 ENT Measured diameter value, 20, of the workpiece.	X 20.000 Y -5.405 Z 18.700 ABS 1	**Offset of Tool#1** Do imitation processing with Tool#1. Then, take off the tool and measure 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 43.060 Y 18.860 Z 57.200 ABS 3	Assign tool#3 to ABS No.3
[X] [3] [0] [ENT]	X 30.000 Y 18.860 Z 57.800 ABS 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".

EDM Function

DC BASIC OPERATION

▶ How to operate 803EDM

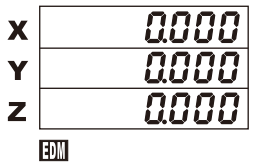


Keys	Name	Description
EDM	EDM	To begin EDM Mode from Normal Mode
SET	SET	To set the discharge direction up or down in normal and EDM mode.
▶ , ◀	Step Key or Up-Down Key	1. To move to the next discharging step 2. To use when discharge ready 3. To set discharge direction up or down
ENT	ENT	Push ENT after inputting data

1. Key Operation

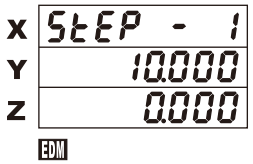
EDM SET ▶ ENT	Xo X Yo Y ABS ⊕ These keys are not available in EDM mode.

EDM



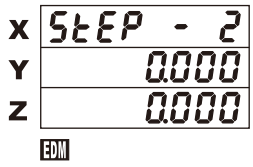
To start with EDM mode.
EDM light will always be on in EDM mode.

SET



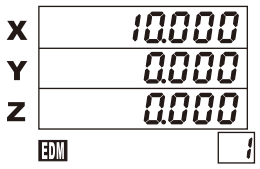
With SET key, you can input a value to each step.

▶



You can move to the next step using these arrow keys.

ENT }
▶ }



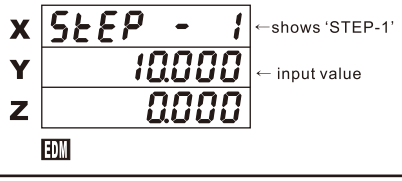
When you finish inputting data,
push ENT key to complete preparation.

<NOTICE> If you want to repeat the same processing after a discharging cycle,
don't forget to push ▶ key. Then " 1 " will be shown in the subsidiary display area.

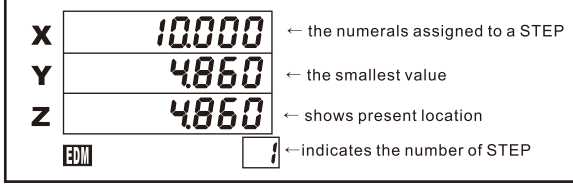
▶ <Ex.1> When you input data in EDM mode,
X and Y axis display windows show EDM related information.
- X-axis window: shows 'STEP-1' (to 'STEP-4')
- Y-axis window: shows numerals you will input

▶ <Ex.2> When you start discharging,
X and Y axis display windows show processing related information.
- X-axis window: shows numerals assigned to each STEP.
- Y-axis window:
  (1) set as Down: firstly shows numerals which is the smallest in the pre-set values.
  (2) set as Up: firstly shows numerals which is the biggest in the pre-set values.

When input data <Ex.1>



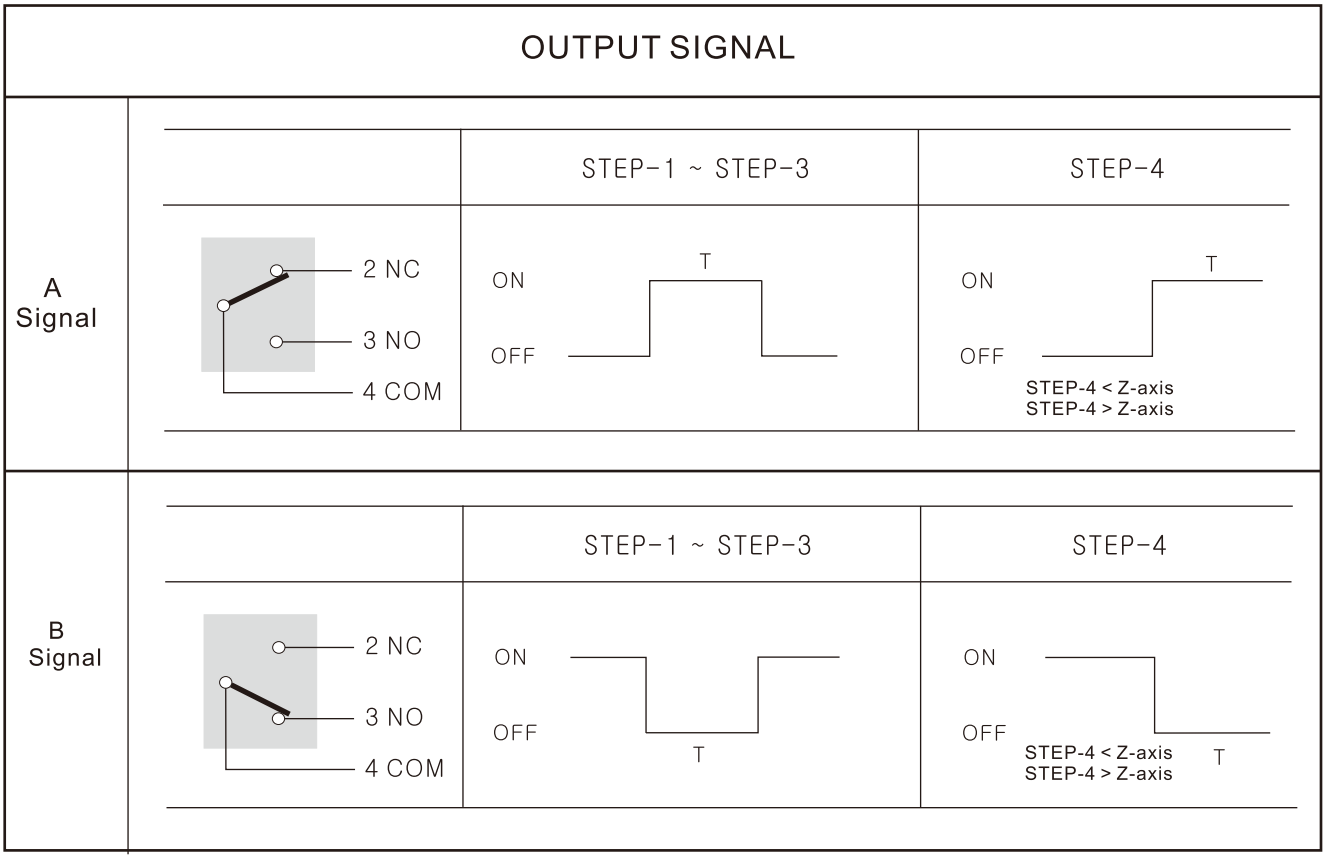
When start discharging <Ex.2>



▶ When discharging of every step is finished, numerals will disappear from the subsidiary display area.
▶ If you input values at random regardless of the STEP;

(1) In case it was set as UP : the smallest value will be automatically assigned to STEP No.1 and the rest in order.
(2) In case it was set as DOWN : the biggest value will be automatically assigned to STEP No.1 and the rest in order.

2. Output Signal of DSC-803EDM Coutner



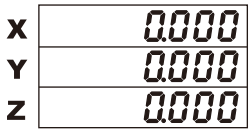
▶ In STEP-1 ~ STEP-3, EDM counter will out a relay signal momentarily but, in SETP-4, the relay signal will be out continuously when Z-axis moves down over the value of STEP-4.

In other words, a relay signal will be out continuously,

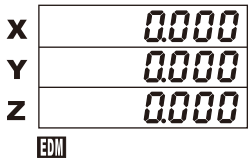
(1) If it has been set as 'UP': when the value of Z-axis is bigger than the value of STEP-4.
(2) If it has been set as 'DOWN': when the value of Z-axis is smaller than the value of STEP-4.

3. How to input numerals

EDM → SET → input numerals → ▶ → ENT / ▶	Xo X Yo Y ABS ⊕ These keys are not available in EDM mode.



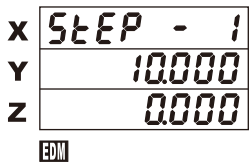
EDM



Start EDM mode by pushing the EDM key.
EDM light is always be on while in EDM mode.

SET

input numerals

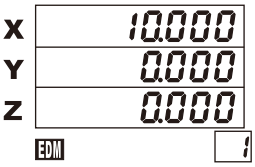


Numerals shows in the Y-axis display area.

▶

Move to the next STEP with ▶ key.

ENT / ▶



When you finish inputting values, a value of a STEP will be shown in X-axis display area.

4. Changing Discharge Directions

SET → ▶ / ◀ → ENT

(1) You can change directions
Not in EDM mode, but just in 'Normal mode'.

(2) Choose one of two directions, UP / DOWN.

(3) When you change discharge direction,
you also have to change scale direction(+/-) accordingly.
(see page 31)

▶ To set discharge direction 'UP'.

SET

X SEtuP --
Y EdN dir
Z dir dn-

▶ / ◀

X SEtuP --
Y EdN dir
Z dir uP-

ENT

X 0.000
Y 0.000
Z 0.000

UP : values are bigger when Z-axis goes down

(Ex.1) STEP-1: 000.00
STEP-2: 250.00
STEP-3: 450.00
STEP-4: 550.00

▶ To set discharge direction 'DOWN'.

SET

X SEtuP --
Y EdN dir
Z dir uP-

▶ / ◀

X SEtuP --
Y EdN dir
Z dir dn-

ENT

X 0.000
Y 0.000
Z 0.000

DOWN : values are smaller when Z-axis goes down

(Ex.2) STEP-1: 550.00
STEP-2: 450.00
STEP-3: 250.00
STEP-4: 000.00

▶ When you set discharge direction 'UP', the value you will input should be bigger than present Z-axis value.
In case of 'DOWN', the value should be smaller than the Z-axis value.

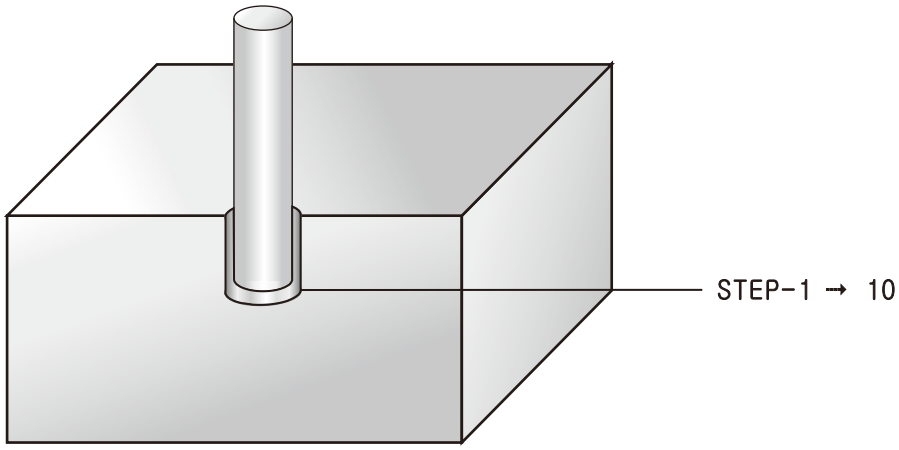
▶ If the STEP values go down though you set the direction 'UP', please change 'counting direction' from (-) to (+) or reversely.

※'Counting direction' is for the direction of a Linear Scale,
while discharge direction is for the direction of an EDM counter(Z-axis moving)

※ How to change 'counting direction' (see 『'page 31』 for more)

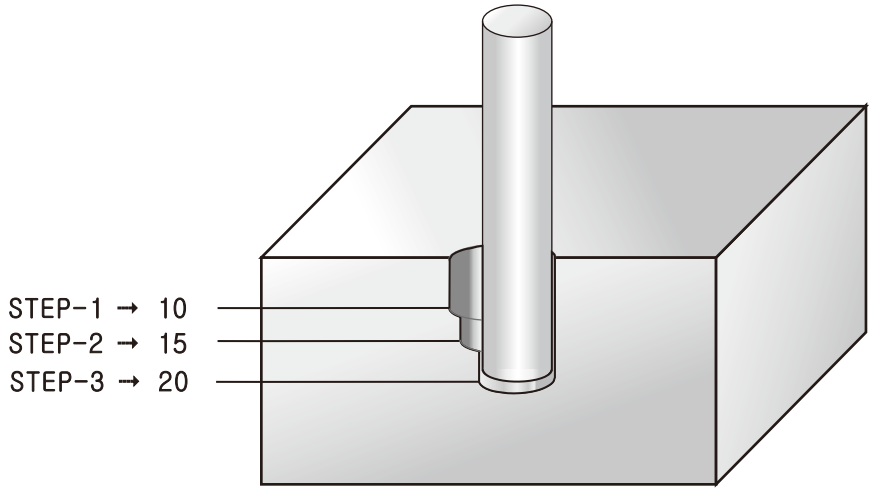
1. Make sure if the counter is in normal mode.
2. Push F button, then select '4.dir' from the menu and push ENT key.
3. Push Z button. (the axis you want to change directions)
4. Push ▶ or ◀ to change present direction to opposite direction.
5. Push ENT to complete changing directions.

Ex. Example of electric discharge processing 1.



EDM	X 0.000 Y 0.000 Z 0.000 EDM	
SET	X StEP - 1 Y 0.000 Z 0.000 EDM	
1 0	X StEP - 1 Y 10.000 Z 0.000 EDM	
ENT ▶	X 10.000 Y 0.000 Z 0.000 EDM 1	10.000 is assigned to STEP-1, and 10.000 is automatically assigned to STEP-2 ~STEP-4.

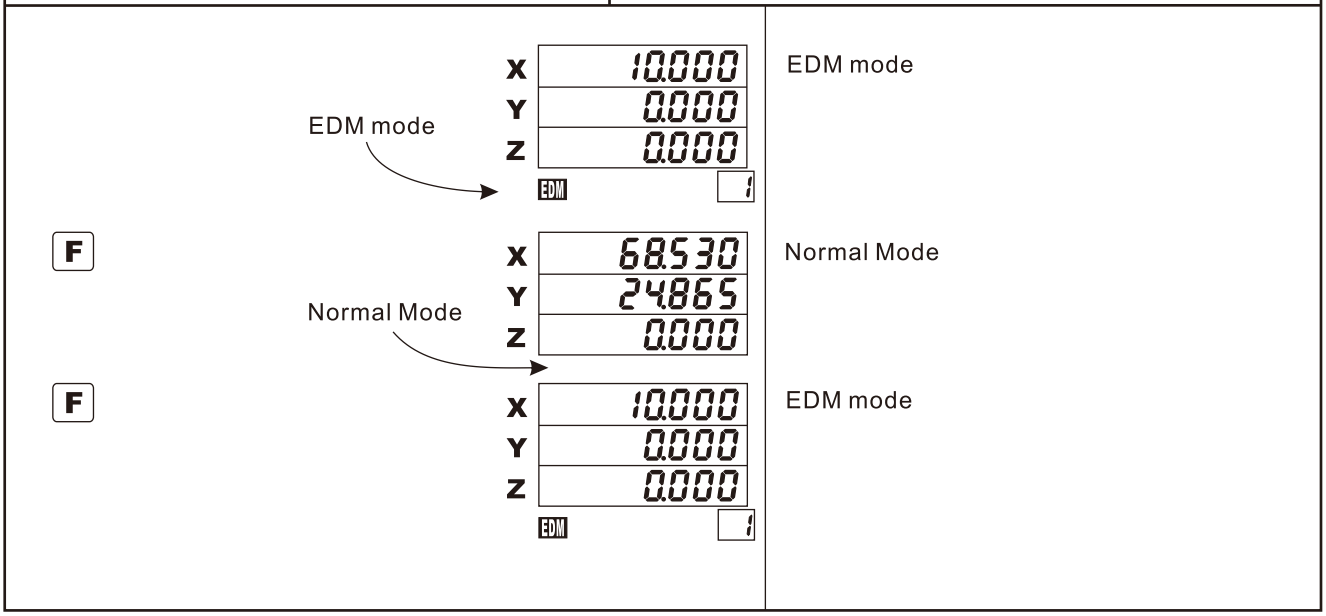
Ex. Example of electric discharge processing 2.



EDM	X 0.000 Y 0.000 Z 0.000 EDM	
SET	X StEP - 1 Y 0.000 Z 0.000 EDM	
1 0	X StEP - 1 Y 10.000 Z 0.000 EDM	
▶ 1 5	X StEP - 2 Y 15.000 Z 0.000 EDM	
▶ 2 0	X StEP - 3 Y 20.000 Z 0.000 EDM	Assigning numerals to the STEPs has been finished as follows. STEP-1 = 10 STEP-2 = 15 STEP-3 = 20 and also STEP-4 = 20 (automatically)
ENT ▶	X 10.000 Y 0.000 Z 0.000 EDM 1	

5. To check present value of EDM mode as in normal mode

F	Whenever push 'F' Key Normal, value and EDM value are switched in turn.



⚠ Notice

Normal mode	EDM mode
X 10.000 Y 0.000 Z 0.000 CIR 1 Number of Bolt Hole circle	X 12.500 Y 0.000 Z 0.000 EDM 1 EDM STEP 번호 Number of STEP in EDM mode

In the subsidiary display area, it indicates;

1. in Normal mode : Bolt Hole Circle Number or ABS number
2. in EDM mode : STEP number

DC INSTALLATION & TROUBLE SHOOTING

1. Installation

1) Installation and precaution

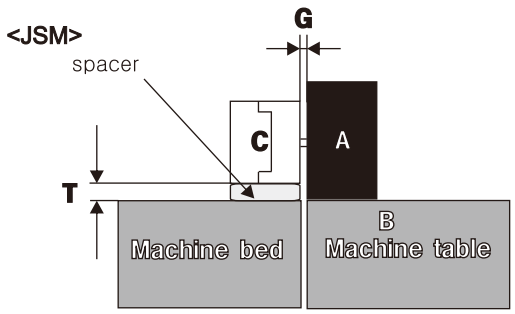
① Display counter should be safely grounded.
② Do not put the DRO system around other electrical appliances which could cause electrical noise.
③ Be careful not to let contaminates like lubrication oil and chips flow into the scale.
④ To insure the highest accuracy possible, install the scales as close as possible to the object being measured or the workplace.
⑤ It is strongly recommended to install a protective cover and insure that the reading head can move freely and smoothly.
⑥ Glass scales can be broken from any shock. Handle with care.
⑦ Use the voltage between 110V and 220V.

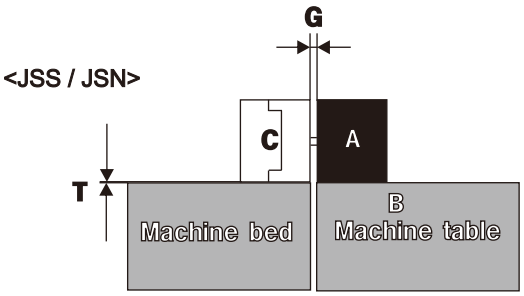
Required Tools for installation

Electric Drill : φ3.5, φ4.3, φ5.2
Tap : M4, M5, M6
Dial Gauge : 1/100 mm
Tap Handle
Screwdriver
Wrench set .

Mounting accuracy

Mount a linear scale to be horizontal and perpendicular to each central axis.



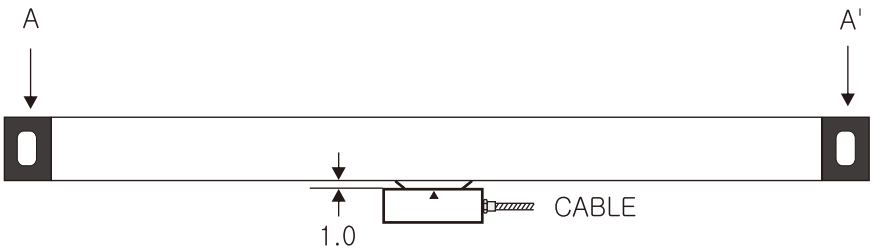


A: a scale body
B: mounting surface for a scale body
C: a reading Head
G: space between a scale body and its heading head
T : space between a reading head and machine bed

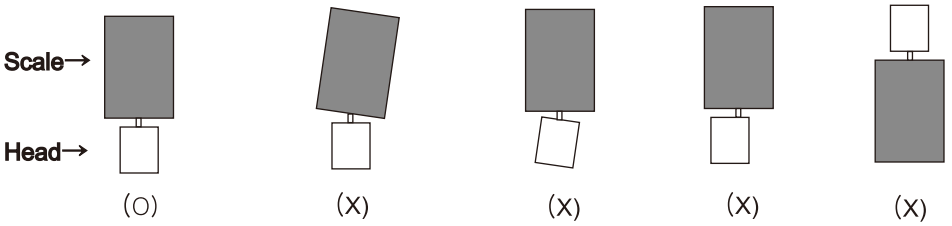
The following gap or space should be maintained.
Degree of parallelization between B and C should be under 0.0039"(0.1mm)

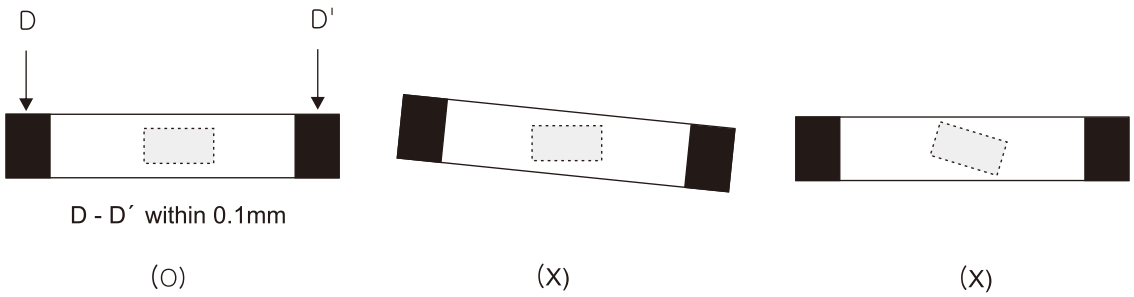
T : 0.1378″(3.5mm)±0.0039″(0.1mm) → JSM
0″(0mm)±0.0039″(0.1mm)→ JSS, JSN

G : 0.039″(1mm)±0.0039″(0.1mm)



A - A´ within 0.1mm

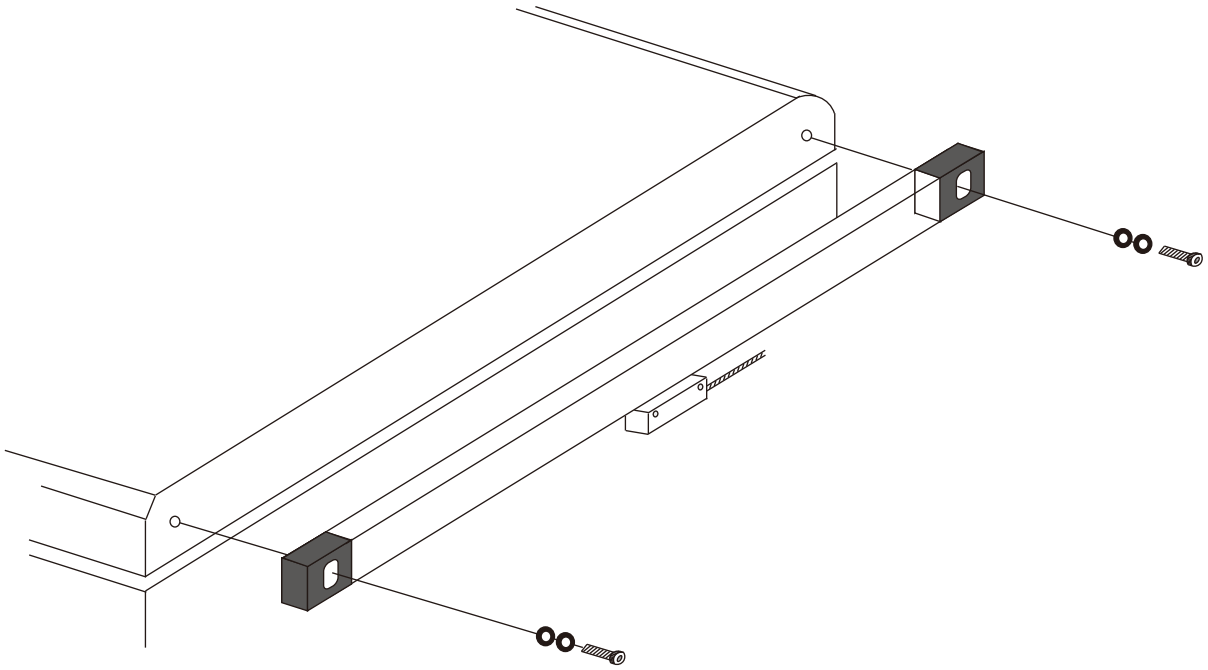




3) Mounting scale

(1) Positioning, Drilling, Temporary fixing.

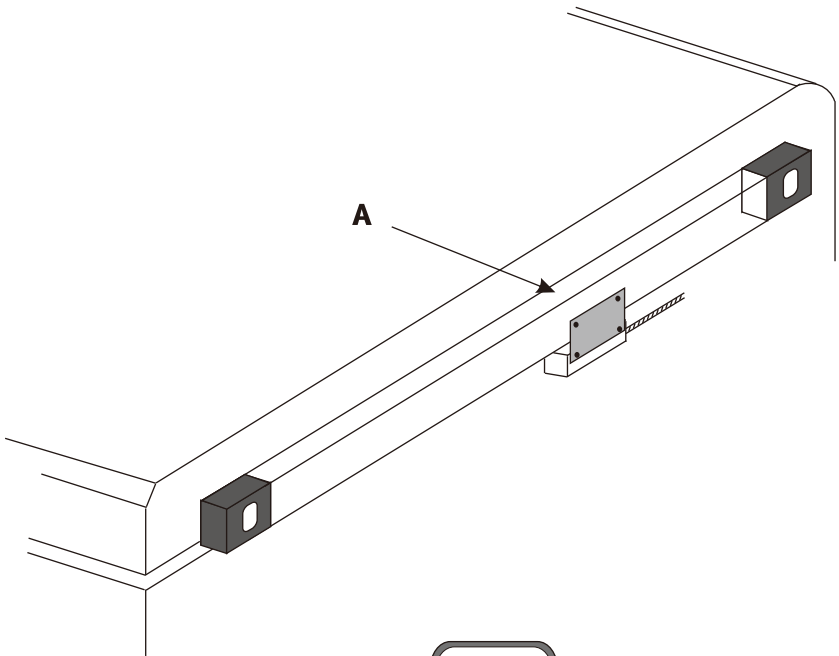
By determining mounting position on mounting surface of machine bed, drill and tap holes.
Fix the scale temporarily to the machine table, using the hexagon socket head bolt.



(2) Mounting

Using dial gauge, measure horizontal angle of A.

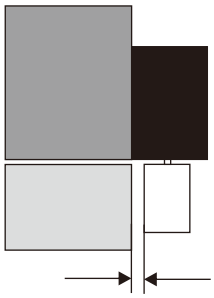
- 1 Scales over 1000mm, check alignment and if it is fixed in a proper space.
- 1 If the alignment of A don't be measured with Digital Gauge, facing area of alignment mark is parallel in both direction.



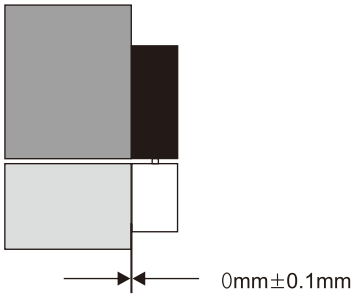
(3) Head carrier Mounting

Space between a machine bed and a reading head should be 0.1378" (3.5mm) ± 0.0039"(0.1mm) for JSM, and 0"(0mm)±0.0039˝(0.1mm)mm for JSS or JSN.

▶ JSM

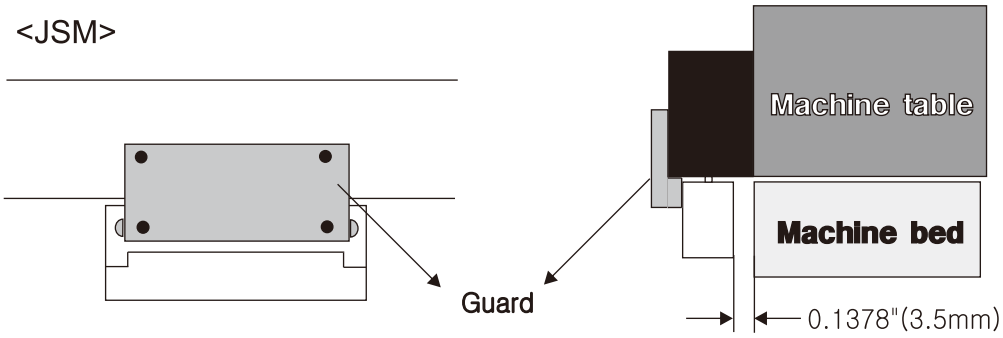


▶ JSS / JSN

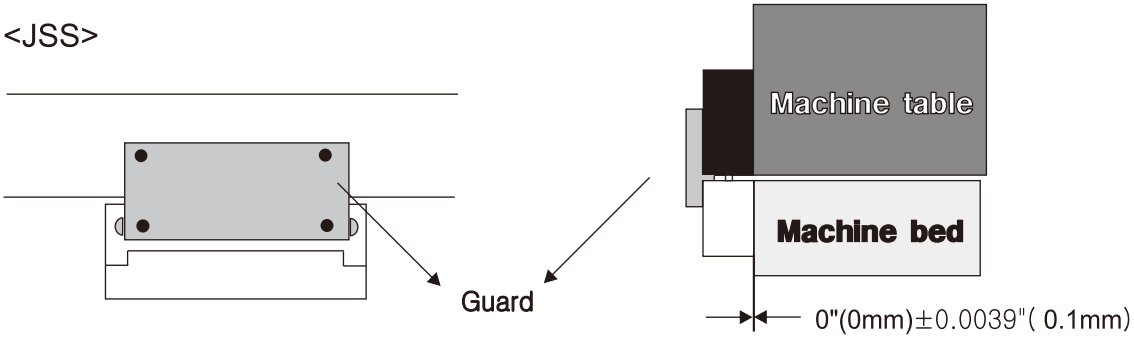


- The guard needs to be removed after installation.

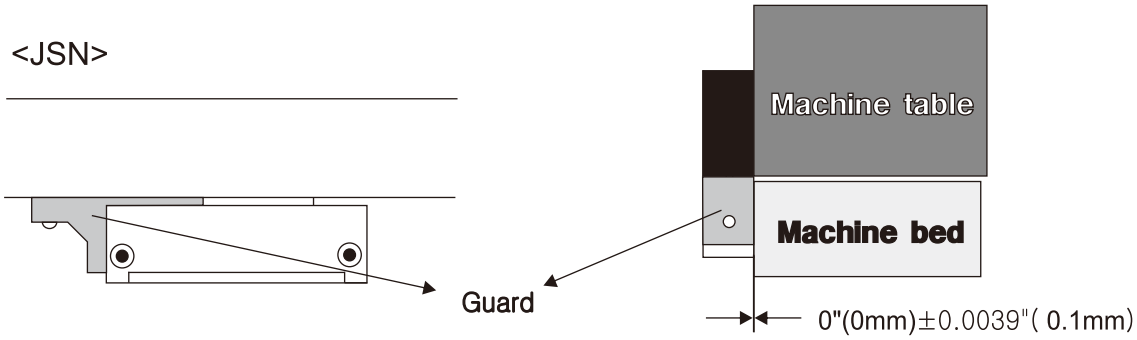
<JSM>

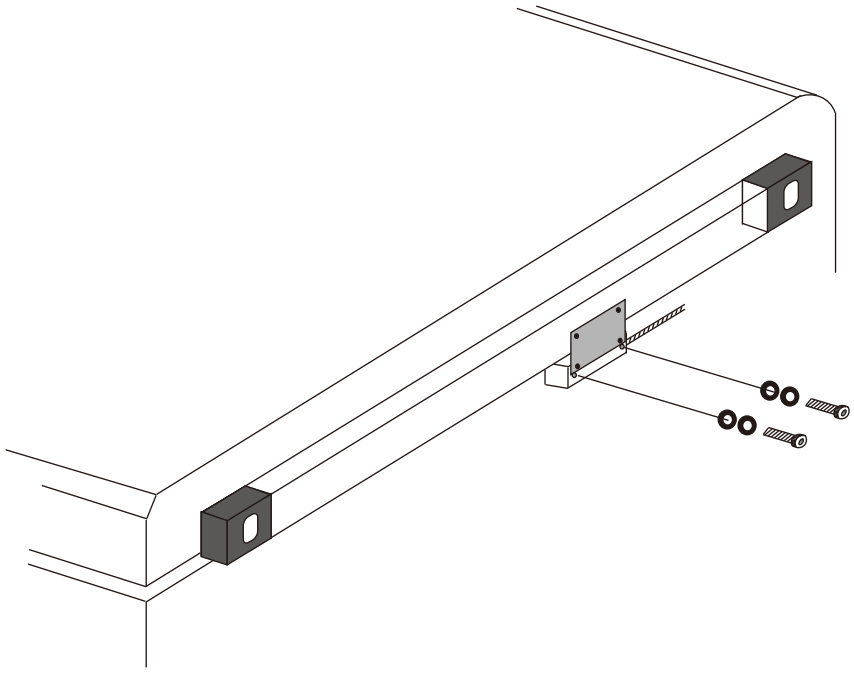


<JSS>

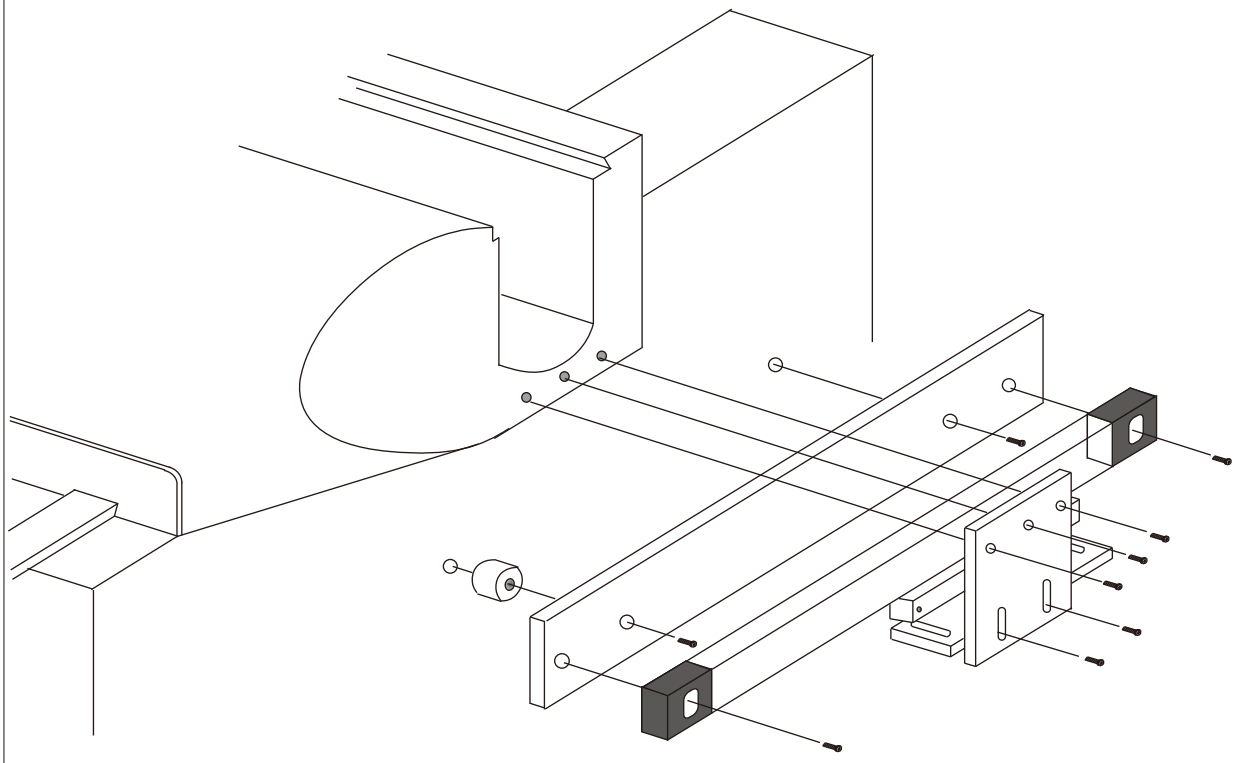


<JSN>





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

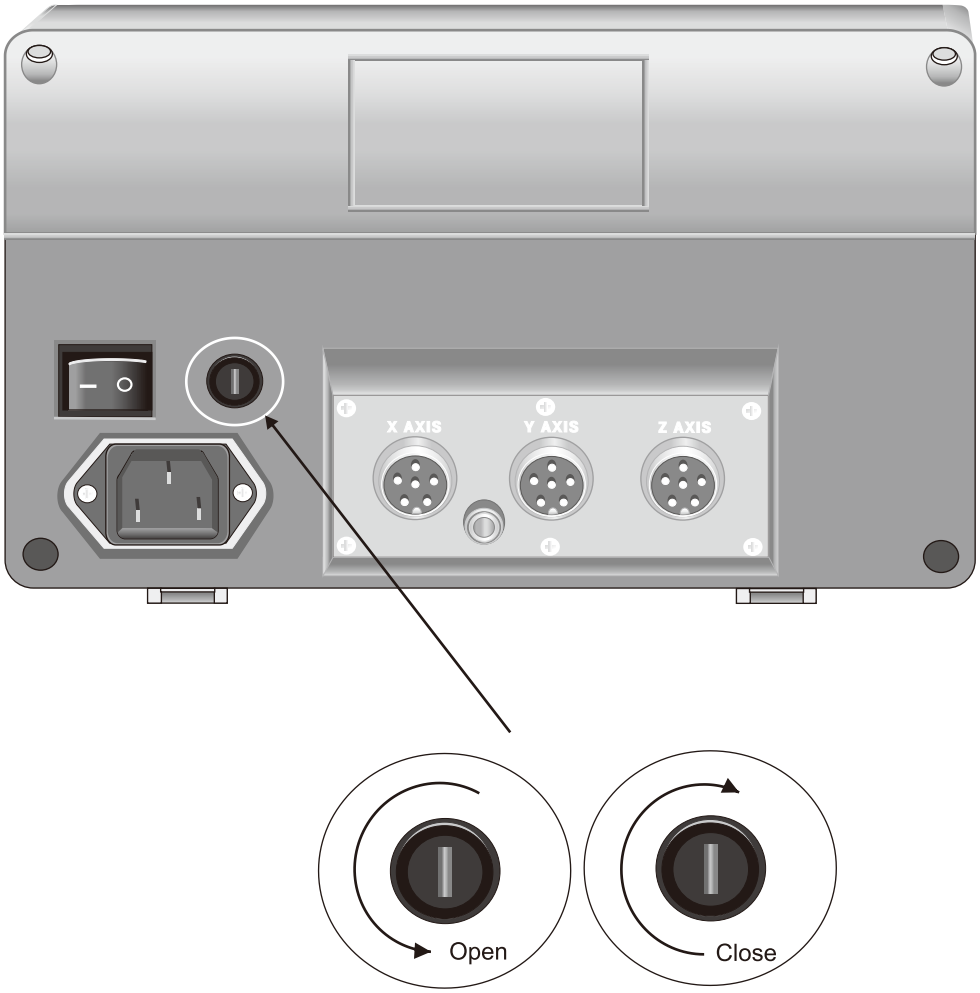


2. Trouble shooing

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 ---------- = RATE Correction Measured distance Ex.1 30.0000 / 299.100 = 1.003009 EX.2 200.000 / 200.050 = 0.999750 F → ▶ → ▶ → ▶ → ▶ → ENT → X → ENT → *Input* RATE → ENT (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.

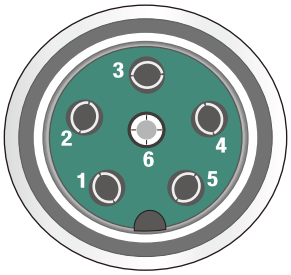
3. Replacing a fuse



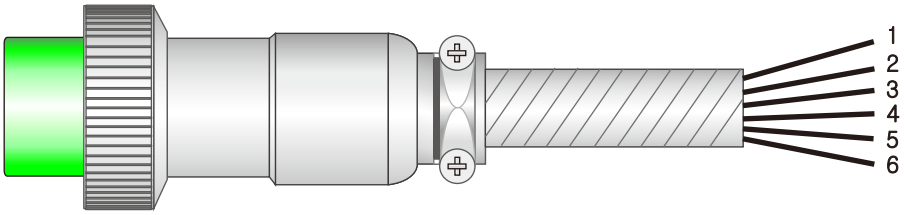
Replacing a fuse, 250V 2A.
Use a – type screw driver

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

4. Connector information

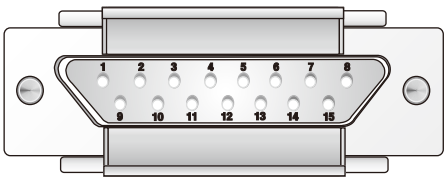
Counter	Scale
	
1 PIN : + (+5V) 2 PIN : A 3 PIN : B 4 PIN : Z 5 PIN : －(0V) 6 PIN : Shield	1 PIN : + (+5V) 2 PIN : A 3 PIN : B 4 PIN : Z 5 PIN : － (0V) 6 PIN : Shield

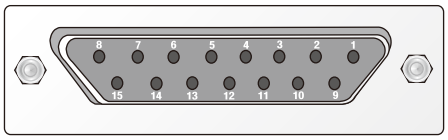
PIN & Color



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

5. RS232 transmission format

1. OUTPUT CODE

RS-232: 115200bps, 8bit data, no parity, 1 stop bit

2. DATA FORMAT

Character String: 42 byte

Format: (4-axis display)

X	x	x	x	x	x	x	x	x	Y	y	y	y	y	y	y	y	Z	z	z	z	z	z	z	z	z	Q	q	q	q	q	q	q	q	q	CR	LF

X,Y,Z,Q : Axis data Start

xxxxxxxxx : X axis coordination value that has 9 digits including decimal point.
Decimal position can be moved according to its scale setting.

yyyyyyyyy : Y axis coordination value that has 9 digits including decimal point.
Decimal position can be moved according to its scale setting.

zzzzzzzzz: Z axis coordination value that has 9 digits including decimal point.
Decimal position can be moved according to its scale setting.

qqqqqqqqq: Q axis coordination value that has 9 digits including decimal point.
Decimal position can be moved according to its scale setting.

CR : carriage return(0x0d)
LF : line feed(0x0a)

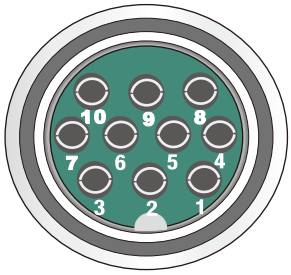
(Ex.) X000132.00Y000001.00Z087234.00Q00123.097®①

X = 123.00, Y=1.00, Z = 87234.00, Q=123.097
® : CR , ① : LF

6. NC Scale Pin Assignment

Counter (15-pin)			Cable (9-pin)		
2 PIN	RX	Green	2 PIN	TX	White
3 PIN	TX	White	3 PIN	RX	Green
5 PIN	GND	Black	5 PIN	GND	Black

Linear Scale



1 PIN	black	Vcc (+) 5V
2 PIN	yellow	A
3 PIN	white	B
4 PIN	green	$\overline{A}$
5 PIN	brown	$\overline{B}$
6 PIN	pink	Z
7 PIN	gray	$\overline{Z}$
8 PIN	shield	Shield (GND)
9 PIN	blue	GND (−) 0V

CERTIFICATE OF WARRANTY

- We, Dong Sahn JENIX Co., Ltd. suggest a limited warranty against various defects describes befow for two years from the date of purchasing, according to the regulation for the preservation of consumer's right.
- Please contact the sales agent or service center as defects were found,
- Please put down your purchasing date and the others below blanks.

Product	Digital Linear Scale (DRO)	Model	DSC800series
Date of Purchase		Serial number	
Agent		Amount	

GUIDANCE FOR THE COMPENSATION OF CONSUMER'S DAMAGE

KINDS of DAMAGES			DETAILS	
			Within the warranty period	After the warranty period
Damage happened in normal operation, or functional defect	Functional or mechanical defects happened in normal operation		Gratuitous Exchange	
	Defects happened during shipping or installing		"	
	Repairable	Recurrence of a trouble	"	
		Recurrence of same trouble for over 4 times continuously	"	
	No repairable	In case of stop producing of parts, or other reason	—	Exchange for new model as compensation
Functional defect which caused from mishandling or misuse conducted on purpose by users.	Defect caused from careless handling or repairing and remodeling.		Charged	Charged
	Defect caused from repairing by non authorized personnel.		"	"
	Defect from applying non-allowable Voltage (use only AC 220V)		"	"
	Defect or broken from dropping down when moving it another place, after installation.		"	"
Others	The cause of trouble is not from product itself but from exterior factor.		"	"
● In the case that the cause is from the natural calamity. ● When life span of consumable parts is almost done or over.			Charged	

Please be informed this certificate is not reissued.

Dong Sahn Jenix Co.,Ltd.

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