Handy Manual Pulse Generator

HC1 Series

Outline

HC1 is the most compact model of all our MPG series, developed for usage in numerous industrial areas.

Features

- Compact, thin-line and lightweight (26mm)
- Axis/Multiplication selection can be set according to customers' requirement
- Sealed structured box
- RoHS compliant (box/cord)
- Exclusive easy-to-attach holder as a standard accessory
- Rubber magnet for option
- Logo can be printed on the wheel cover

Specifications

1. Body	
Dimension	124×73×26(mm)*
LED Visible Indicator	DC24V Green
Noise Immunity	EN50082-2 compliant
Other Features	Logo available on the wheel cover

* excluding hook, switch and knob

2. Mechanical specifications
2.1 Rotary Encoder Unit

* See RE45B page for details

2.2 Selector Switches

* See MR8A/MR8C page for details

3. Environmental specifications	
Operating temperature	-10℃ 14F ～ +60℃ 140F
Storage temperature	-40℃ 40F ～ +70℃ 158F

4. Curl/Straight Cords	
Curl Cord	19/25-conductor shielded cable 19-conductor: select from 2m, 3m, 4m, 5m 25-conductor: select from 3m, 5m (We will select either 19 or 25-conductor in accordance with required functions) For further details, please see the catalogues for curl cords
Straight Cord	Also available

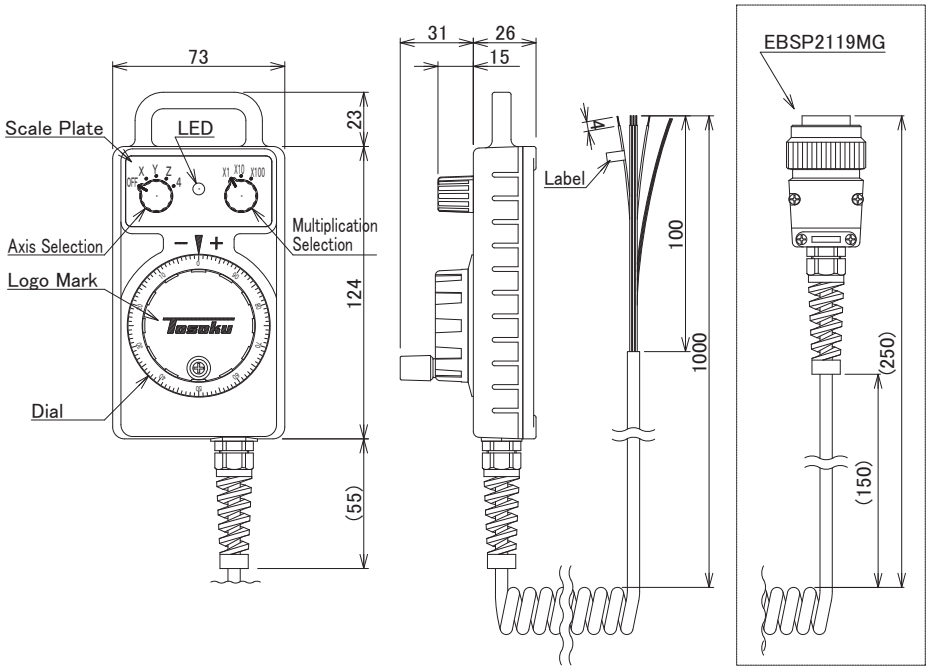
5. Connector Unit	
Connector	Waterproofed connector to be attached on the end of the cord optionally provided

Warranty

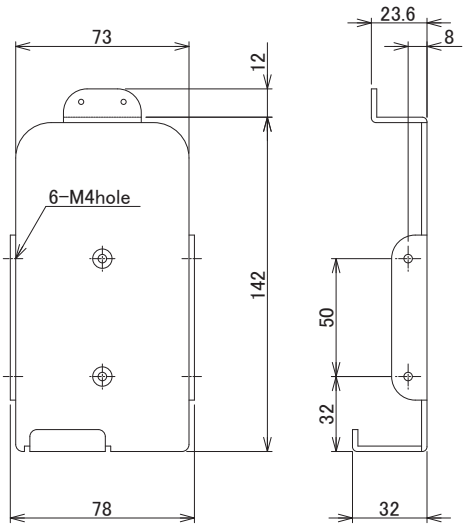
- 1 year from the date of shipment.

Dimensions (mm)

HC1 main unit with curl cord



Original Holder(THA)



Material : SPCC(t2.3)
(Black chromate filming)

Part Number Designation

HC1 2 1 A B 2 1 03

Name of series: HC1

	number of pulse
1	100 PPR
※1 2	25 PPR

※1 100 clicks / 25 pulses per rotation.

	power supply voltage
1	12V
5	5V
D	5V (a differential output)
※2 2	24V (for photocoupler only)

※2 Output circuit is open collector.

	Optional selector switch
	none selection switch
※6 03	Digital code switch (Gray code 30° type)

※6 The starting position of a cordswithc is 0, and the step angle is 30°.

※5	Options of connectors
0	without connector
1	With a male side connector
2	With a male & a female side conector
9	With a specification connector

※5 In case nothing specified, there will be no connector attached.

※4	Curl Cord
1	With 2m curl cord*
2	With 3m curl cord
3	With 5m curl cord
4	With 4m curl cord*

※4 Tosoku choose the number of cables by the function.
*19 conductors only

	Logo Mark on Dial
B	With TOSOKU Logo Mark
C	With No Logo Mark
D	With a specified Logo Mark

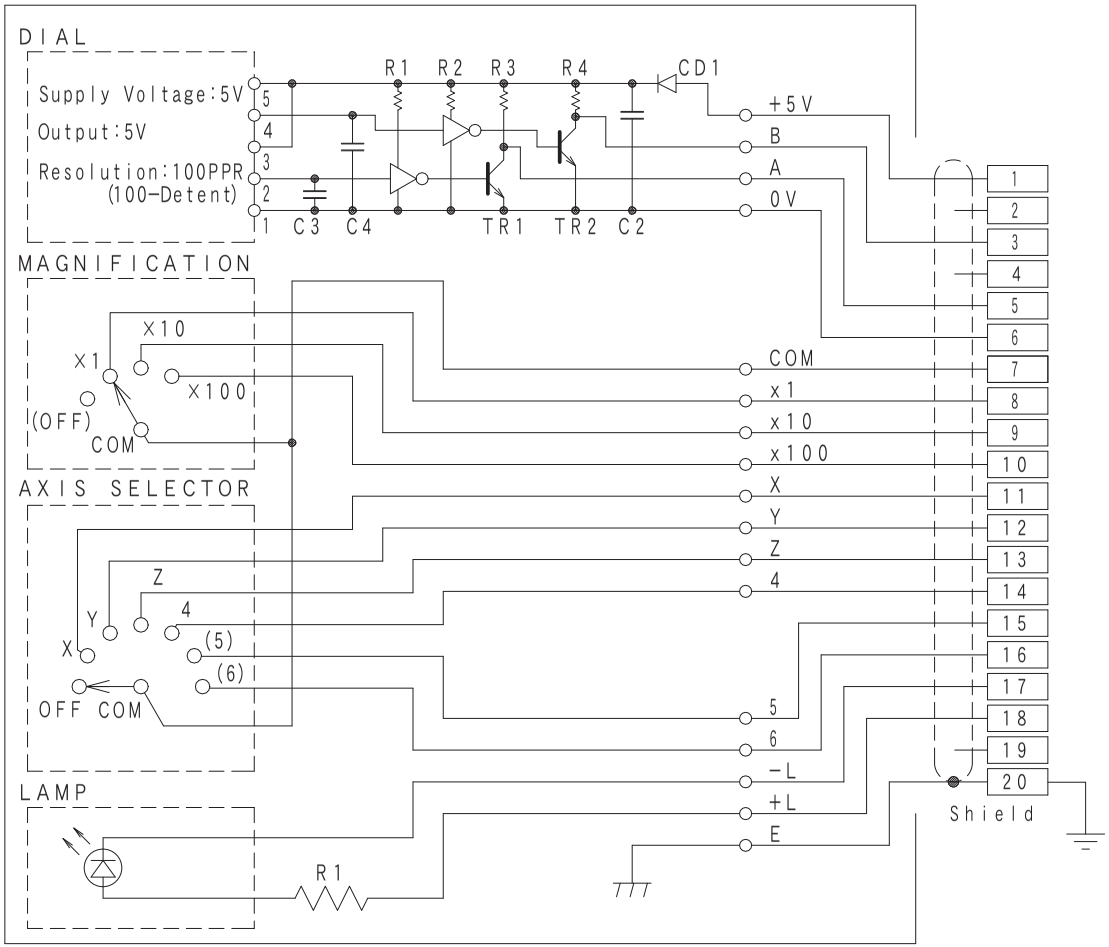
※3	Axial Select Description	Magnification Select Description
A	OFF X Y Z 4	×1 ×10 ×100
B	OFF X Y Z 4 5	×1 ×10 ×100
C	OFF X Y Z 4 5 6	×1 ×10 ×100
D	OFF X Y Z 4 5 6 7	×1 ×10 ×100
E	OFF X Y Z 4 5 6 7 8	×1 ×10 ×100
F	OFF X Y	×1 ×10 ×100
G	OFF X Y Z	×1 ×10 ×100
H	X Y	×1 ×10 ×100
J	X Y Z	×1 ×10 ×100
K	X Y Z 4	×1 ×10 ×100
L	X Y Z 4 5	×1 ×10 ×100
M	X Y Z 4 5 6	×1 ×10 ×100
N	X Y Z 4 5 6 7	×1 ×10 ×100
P	X Y Z 4 5 6 7 8	×1 ×10 ×100

※3 Description other than above is available upon reqest.

★HC115 is for FANAC NC equipment.
★HC121 is for MITSUBISHI NC equipment. (MELDAS)

Circuitry

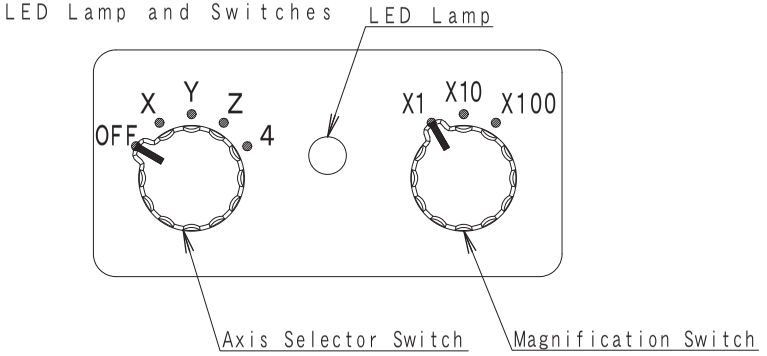
HC115A***



Curl Code Wiring

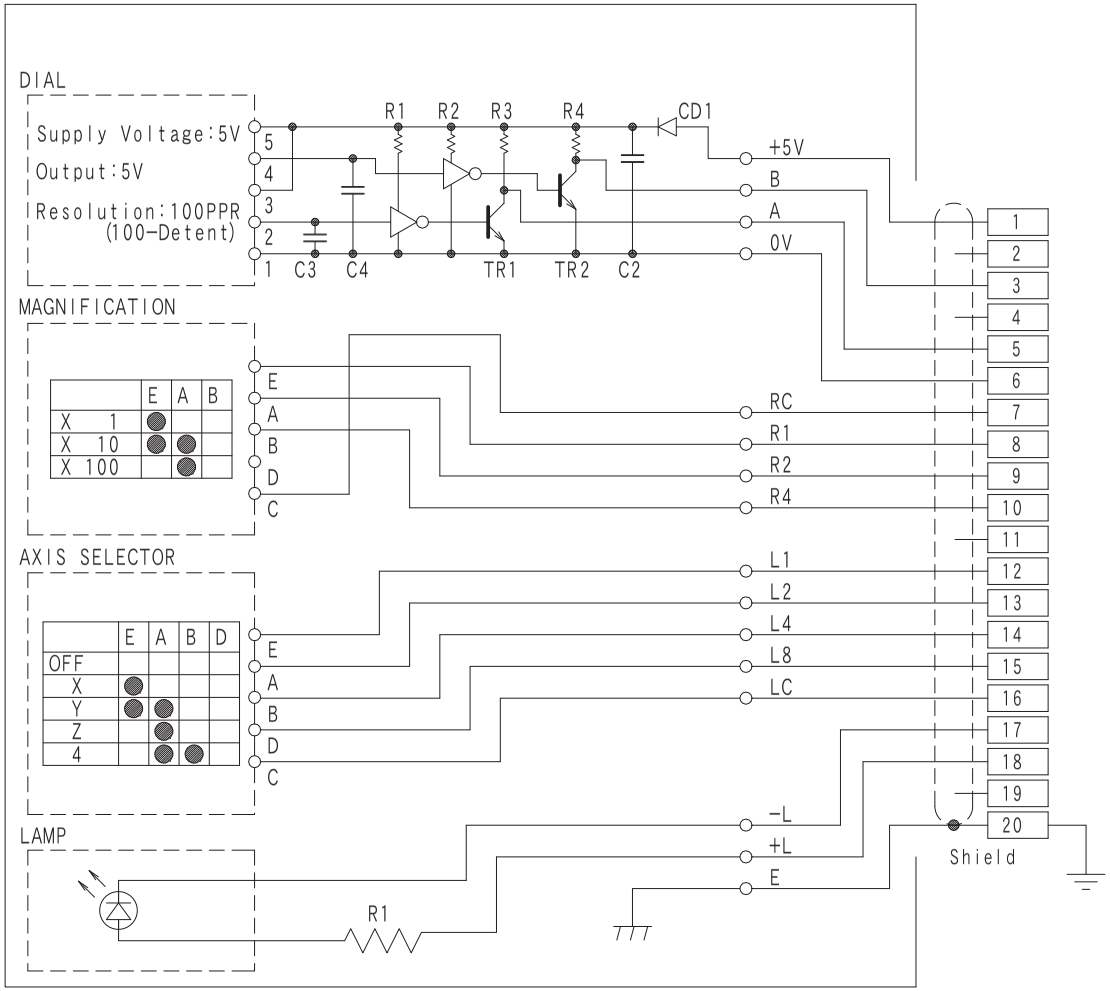
Terminal No.	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	−	Red	
3	B	Orange	Dial Channel B Output (0/5V)
4	−	Yellow	
5	A	Green	Dial Channel A Output (0/5V)
6	0V	Blue	Dial 0VDC
7	COM	Purple	Common Terminal of Multiplication Switch
8	×1	Gray	×1
9	×10	White	×10
10	×100	Black	×100
11	X	Pink	Axis X
12	Y	Light blue	Axis Y
13	Z	Yellow-green	Axis Z
14	4	Light purple	Axis 4
15	5	Color-less	(Axis 5)
16	6	Color-less/BK	(Axis 6)
17	−L	Light blue/BK	LED Lamp (−)
18	+L	Yellow-green/BK	LED Lamp +24VDC
19	−	Light brown	
20	E		Shielding Wire (connect to GND)

* /BK:with Black line



Circuitry

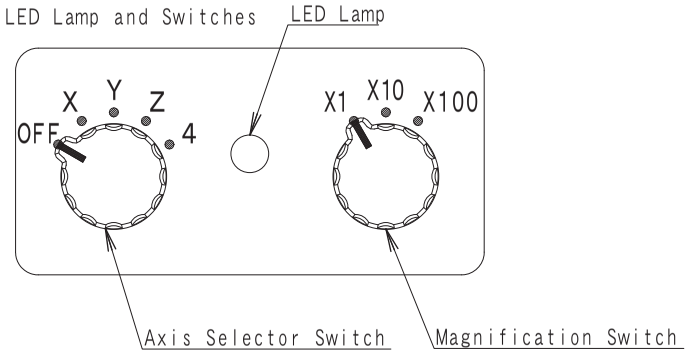
HC115A***03



Curl Code Wiring

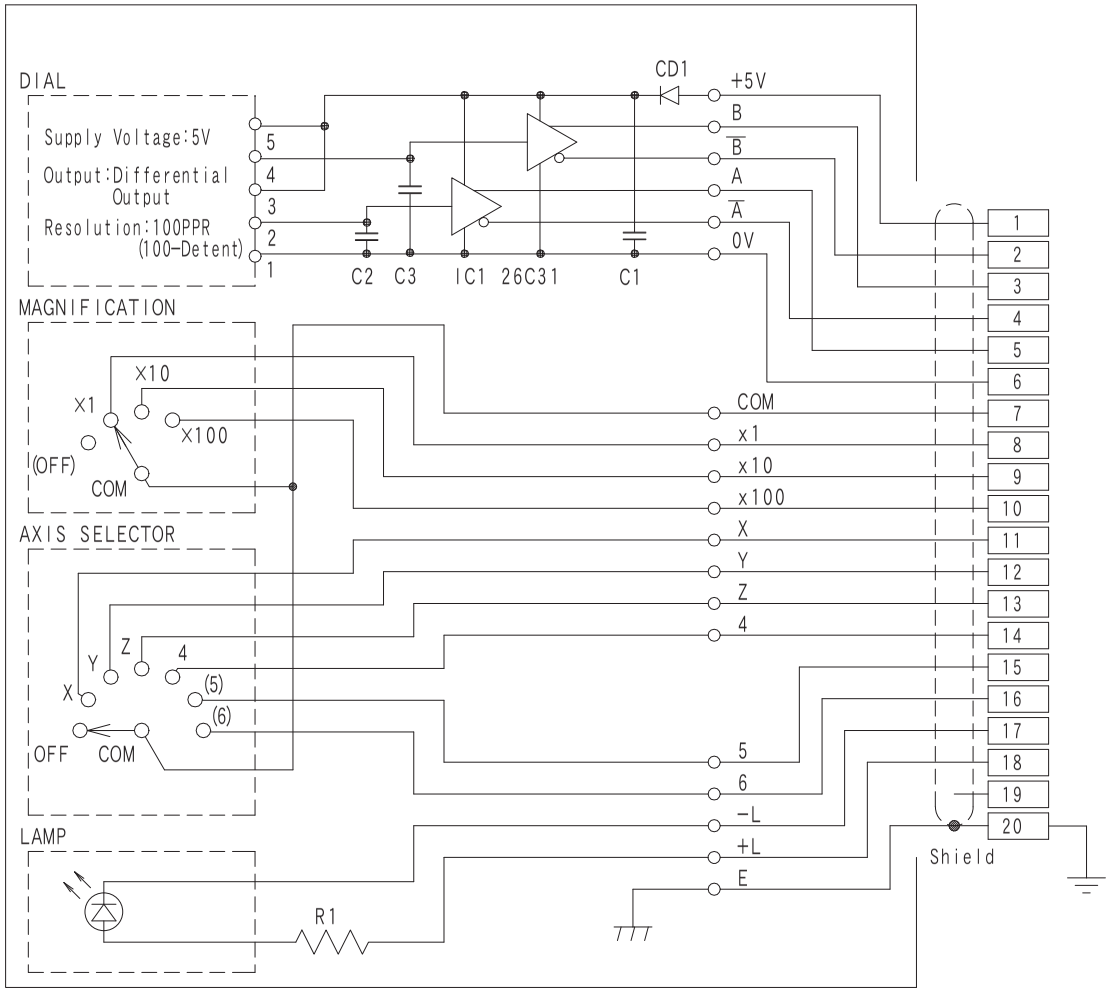
Terminal No.	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	–	Red	
3	B	Orange	Dial Channel B Output (0/5V)
4	–	Yellow	
5	A	Green	Dial Channel A Output (0/5V)
6	0V	Blue	Dial 0VDC
7	RC	Purple	Common Terminal of Multiplication Switch
8	R1	Gray	Terminal E
9	R2	White	Terminal A
10	R4	Black	Terminal B
11	–	Pink	
12	L1	Light blue	Terminal E
13	L2	Yellow-green	Terminal A
14	L4	Light purple	Terminal B
15	L8	Color-less	Terminal D
16	LC	Color-less/BK	Common Terminal of Axis Selector Switch
17	-L	Light blue/BK	LED Lamp (-)
18	+L	Yellow-green/BK	LED Lamp +24VDC
19	–	Light brown	
20	E		Shielding Wire (connect to GND)

* /BK:with Black line



Circuitry

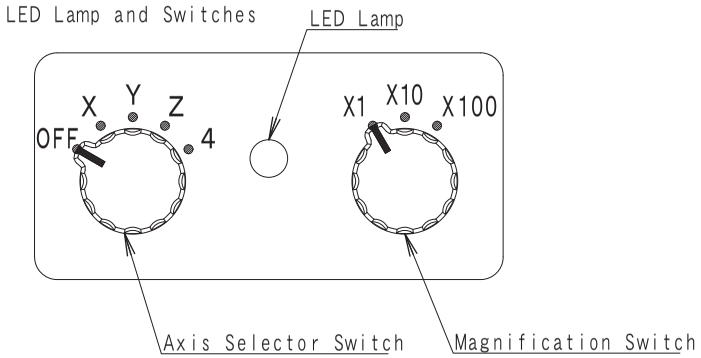
HC11DA***



Curl Code Wiring

Terminal No.	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	$\overline{B}$	Red	Dial Channel B Inverting Output
3	B	Orange	Dial Channel B Output
4	$\overline{A}$	Yellow	Dial Channel A Inverting Output
5	A	Green	Dial Channel A Output
6	0V	Blue	Dial 0VDC
7	COM	Purple	Common Terminal of Multiplication Switch
8	X1	Gray	X1
9	X10	White	X10
10	X100	Black	X100
11	X	Pink	Axis X
12	Y	Light blue	Axis Y
13	Z	Yellow-green	Axis Z
14	4	Light purple	Axis 4
15	5	Color-less	(Axis 5)
16	6	Color-less/BK	(Axis 6)
17	−L	Light blue/BK	LED Lamp (−)
18	+L	Yellow-green/BK	LED Lamp +12~+24VDC
19	−	Light brown	
20	E		Shielding wire (connect to GND)

＊/BK:with Black line



Tosoku

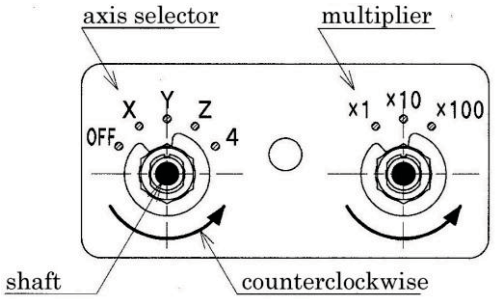
How to mount knobs for selector switches (HC1/HM/HT series)

1. All switches select OFF circuits (position no.1) when fully turned counterclockwise. 1 click/2 clicks clockwise will make a connection of position no.2/no.3 with COM which feeds a signal for each.

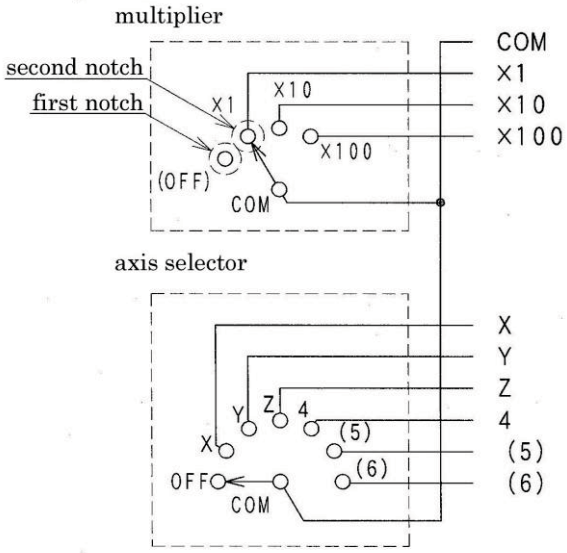
2. If the indications on the plate begin with "OFF", "0" or any other indication to render disconnection, confirm that the shaft is turned fully counterclockwise to the end, then screw the knob on to it within 5kgf.cm of torque.
   If the indications begin with "X", "x1" or any other indication to render connection, 1) turn 1 click clockwise from the very left end, 2) adjust the white line on the knob with the indication, then 3) tighten the screw of the knob (cf. picture 2. multiplier switch).

3. The standard wiring diagrams indicated do not necessarily be consistent with the actual delivered products. Confirm the diagrams on the specifications when mounting the knobs.

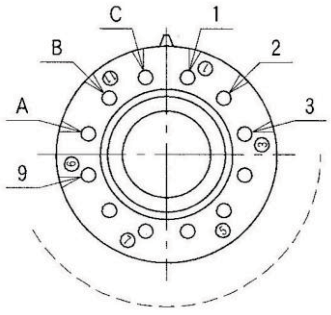
4. When the knob is turned, it will stop where stopper-pin is inserted. To alter the position to stop, refer to picture 3 and 4, then re-insert the pin into the designated position.



Picture 1. plate

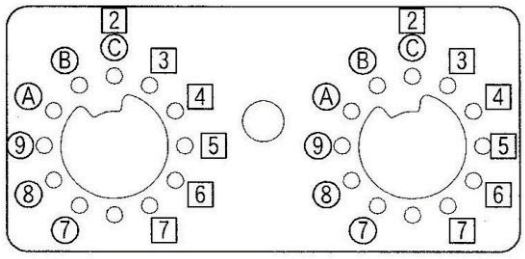


Picture 2. Indications and wiring



Picture 3. The back of the knob

(holes for stopper-pins)



Numbers and alphabets with ○ show positions to start, and those with □ show positions to stop. Select the appropriate position from the picture 4 and insert the pins into the correspondent positions.

e.g. The plate shown in the picture 1 will be set as follows.
Axis Selector: A, 4/ Multiple Selector: B, 3.

Picture 4. Correspondent Positions of the Pins