

TOKYO SOKUTEIKIZAI CO., LTD.

Handy Manual Pulse Generator Catalogue

HT	_____	P . 0 2
	thin-line, 3 position enabling switch available	
HC 1	_____	P . 0 5
	compact, light	
HM	_____	P . 1 1
	compact, emergency stop button/enabling switch available	
HR	_____	P . 1 4
	3 position enabling switch available	
HS	_____	P . 1 7
	resin box, free-to-design	

Metal holders are provided for all Handy MPGs. Magnets are optionally provided.
Original company logos can be printed on the dials.

Handy Manual Pulse Generator



HT Series



Outline

HT series are easy-to-handle and compact Handy MPGs which put a premium on safety with 3-position enabling switches and emergency stop buttons.

Features

- Ergonomically designed and compact to be held with one hand
- 3-position (off-on-off) enabling switch available on either side
- Upper part is free to design and allows various kinds of switches (including emergency stop button) to be set
- RoHS compliant
- On the middle part: either MR8A - the rotary switch series or MR8C - the digital code switch series selectable
- Strong plate magnets available on back side (as option)
- Various types of curl cords provided along with connectors of all sorts at your request

Specifications

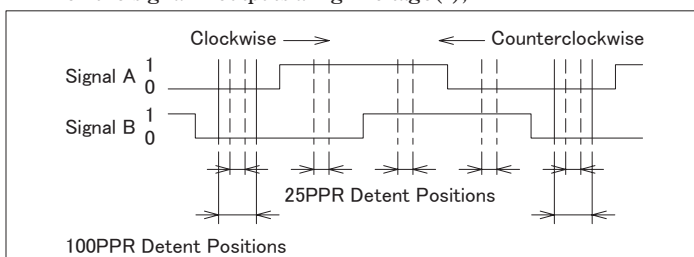
1. Body	
Dimension	170×80×39(mm)
LED light	DC24V Green
Enabling switches	Available on both sides
Logo	Logo available on the wheel cover

2. Mechanical specifications	
2.1 Rotary Encoder Unit	

Output Voltage	DC5V±10%, DC12V±10% or 12~24V
Wheel	100 clicks / rotation 100 pulses or 25 pulses per rotation
Rotational Durability	Over 1,000,000 times

Output Waveform

- 1) Turning the shaft clockwise would generate the signal A when the signal B outputs a low voltage (0);
- 2) Rotating the shaft counter-clockwise would generate the signal A when the signal B outputs a high voltage (1);



* See RE45B catalog for more details

2.2 Selector Switches

MR8A (rotary switch) 25V15mA (AC/DC)
MR8C (code switch) 15V10mA (AC/DC)
* See MR8A/MR8C catalog for more details

3. 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	Dripproofed connector to be attached on the end of the cord optionally provided (EBSP2119-D/EBSP2119FGS-D by DDK)
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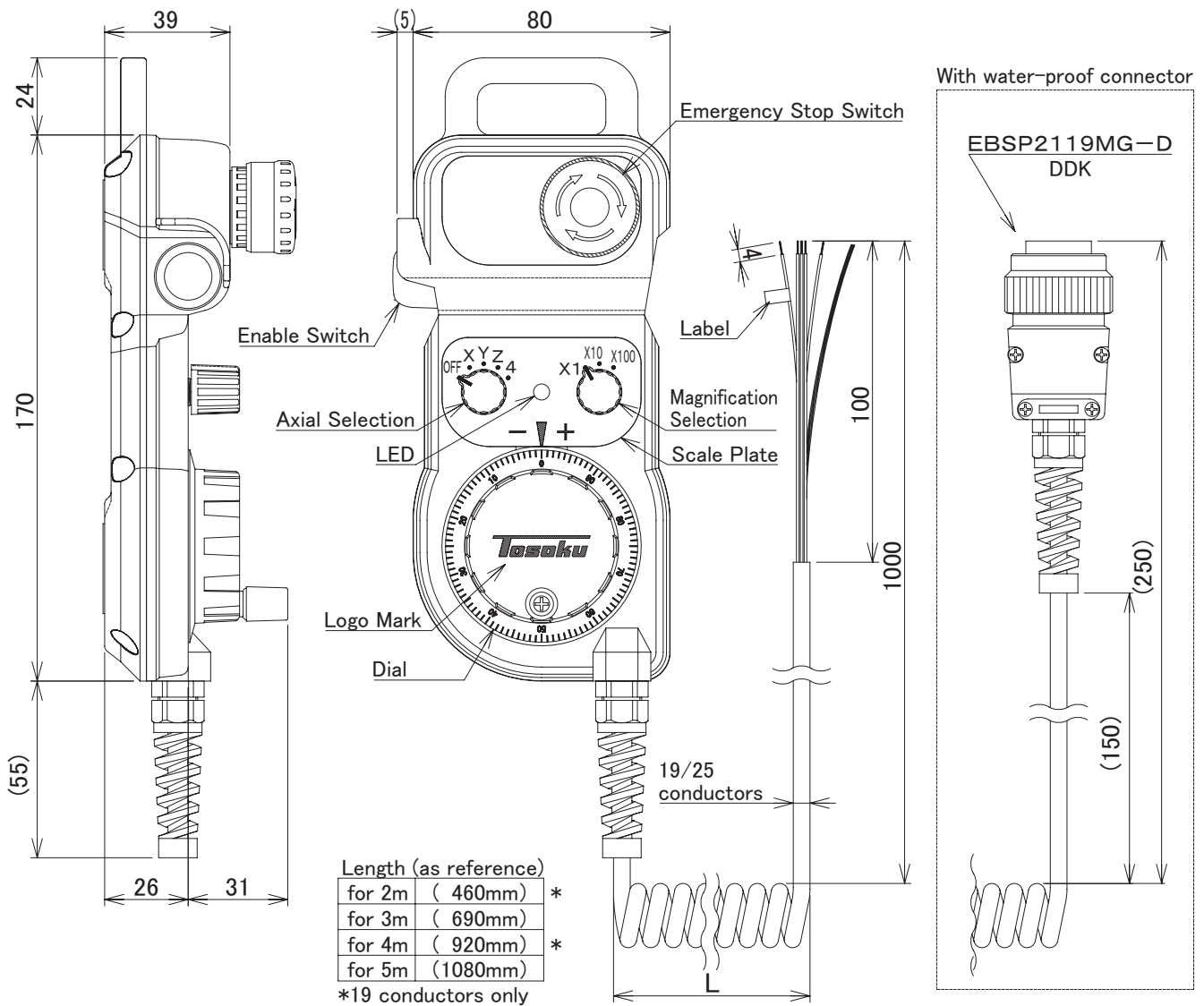
Warranty

- 1 year from the date of shipment.

Dimensions (mm)

HT Unit with curl cord

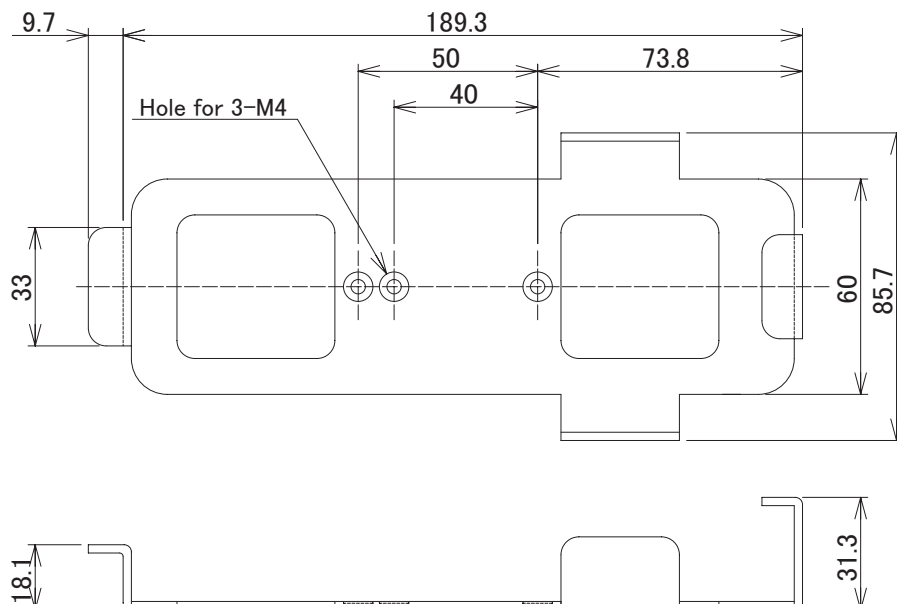
※ This drawing is an example, it may differ according to number of swithes etc.



Original Holder

Material : SPCC

Cathodic Electrodeposition Coating



H T series Order Sheet (Print out this page for sending orders.)

We'll hand in to you a drawing in accordance with your order. The drawing shall be approved before starting in on production.

1) Select one from each spec table and fill blank spaces with " ".

Pulses/Rev.
100PPR
* 25PPR

*25PPR and yet 100 Clicks/Revolution

Power Supply	Output
5V	5V (330Ω Pull Up)
5V	Open Collector
5V	(for Line Driver)
12V	5V (2.2kΩ Pull Up)
12V	12V (2.2kΩ Pull Up)
12V	Open Collector
* 12V-24V	for Photocoupler (Open Collector)

* Transistor will be "OFF" at every clicked positions.

(For other open collector output models, transistors will be "ON" at every clicked positions.

Logo on the dial
None
with "TOSOKU" logo
with an original logo()

3-Positions Enabling Switch (contacts)
None
One on the left()
On both sides()

* Assigned contacts should be 2 or less for normally open (NO) and 2 or less for normally closed (NC).

(2A2B maximum.)

Emergency Switch (contacts)
None
Mounted ()

* 1 for (NO), 4 for (NC) maximum (1A/4B). Maximum of 4 contacts in total (1A3B or 4B).

Magnet on the backside
None
Mounted

Axis Selector/Multiplication Selector Switches
MR8C type (Gray code switch)
MR8A type (Selection switch)

Indications for Axis Selector (left)

e.g.	OFF, X, Y, Z, 4, 5

Indications for Multiplication Selector (right)

e.g.	x1, x10, x100

Curl Cord Length
2m Curl Cord (for only 19-conductor cord)
3m Curl Cord
4m Curl Cord (for only 19-conductor cord)
5m Curl Cord

* We will select either 19-conductor cord or 25-conductor cord to cover your requested specs

Waterproofed Connector (for curl cord)
None
Male connector (EBSP2119MG-D, DDK)
Female connector (EBSP2119FGS-D, DDK)

* Fill in both spaces to order both connectors.

2) Other options

Other options to request
(e.g.) Switches with LED illumination x 2 2 contact selector switch x 1



Rotary Encoders
Pulse Generators
Rotary Switches
Code Switches
Lever Switches
Trackballs

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	
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* See MR8A/MR8C page for details

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

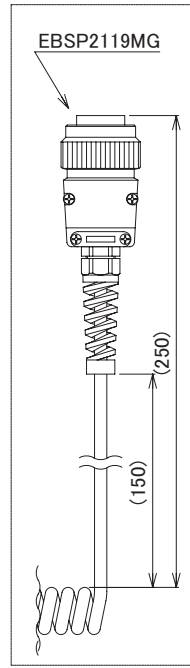
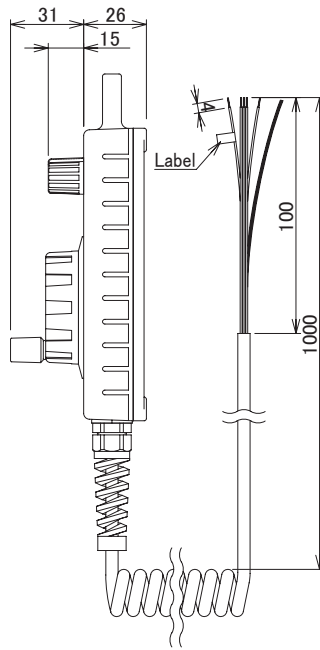
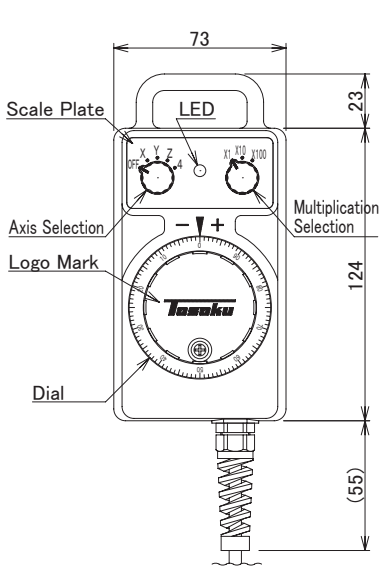
5. Connector Unit	
Connector	Waterproofed connector to be attached on the end of the cord optionally provided

Warranty

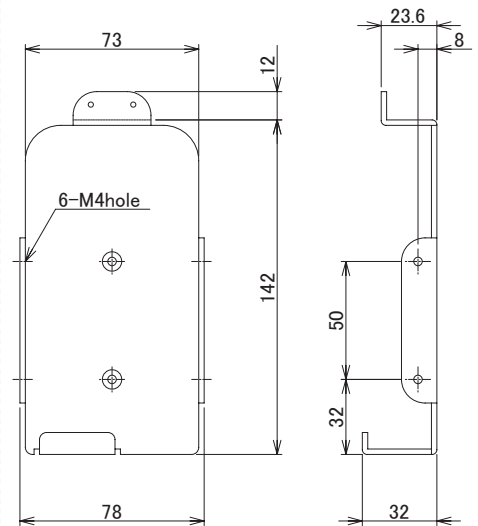
- 1 year from the date of shipment.

Dimensions (mm)

HC1 main unit with curl cord



Original Holder (THA)



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

Part Number Designation

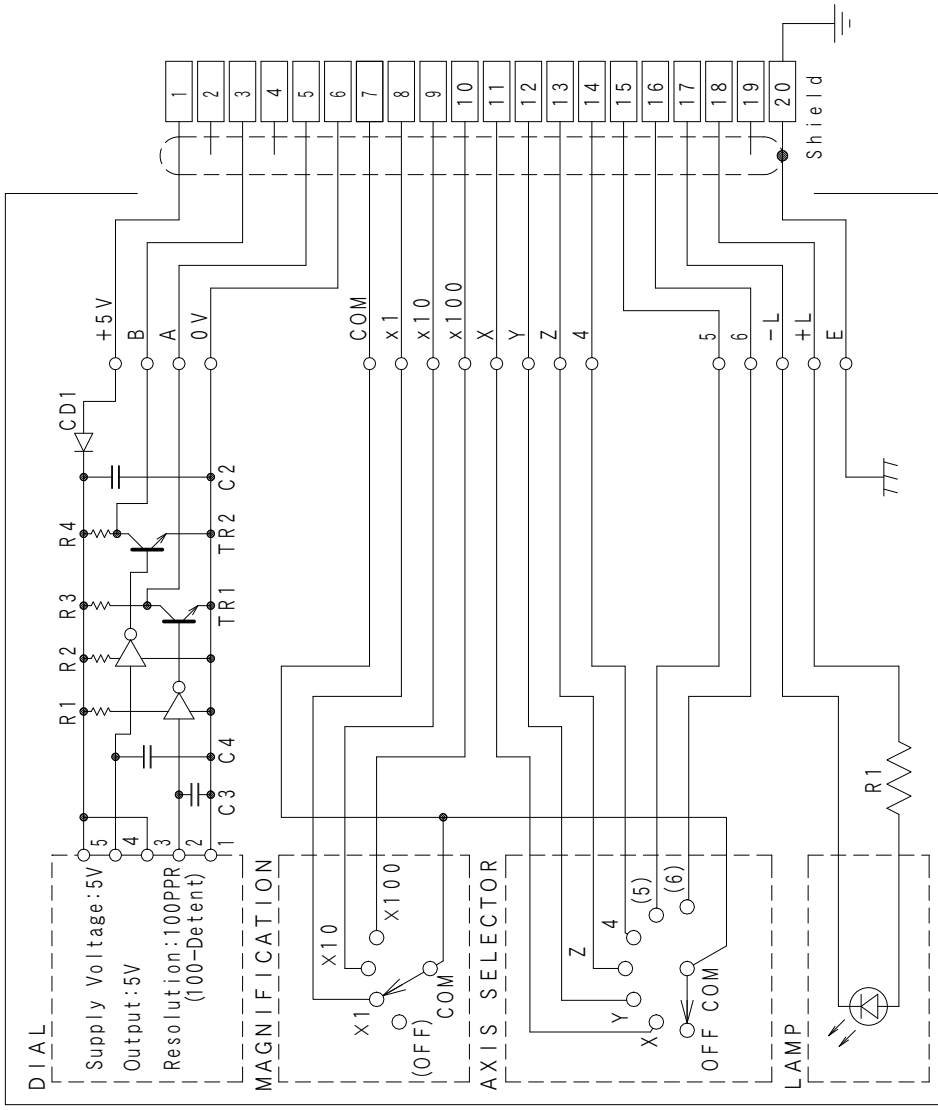
	HC1	2	1	A	B	2	1	03	
	Name of series								
		number of pulse							Optional selector switch selection switch
		1 100 PPR							none
※1		2 25 PPR						※6	03 Digital code switch (Gray code 30° type)
		※1 100 clicks / 25 pulses per rotation.						※5	Options of connectors
		power supply voltage							0 without connector
		1 12V							1 With a male side connector
		5 5V							2 With a male & a female side connector
		D 5V (a differential output)							9 With a specification connector
※2		2 24V (for photocoupler only)						※5	In case nothing specified, there will be no connector attached.
		※2 Output circuit is open collector.						※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				

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

※3 Description other than above is available upon request.

Circuitry

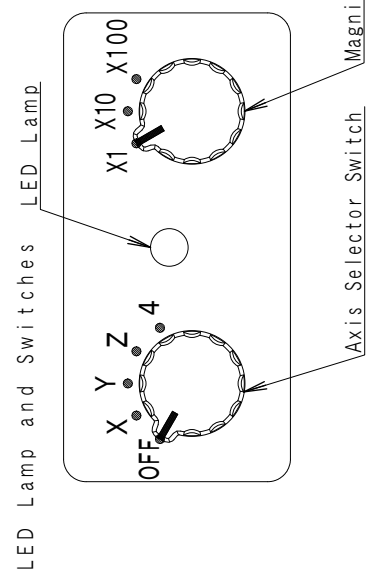
HC115A**



Cur l Code Wiring

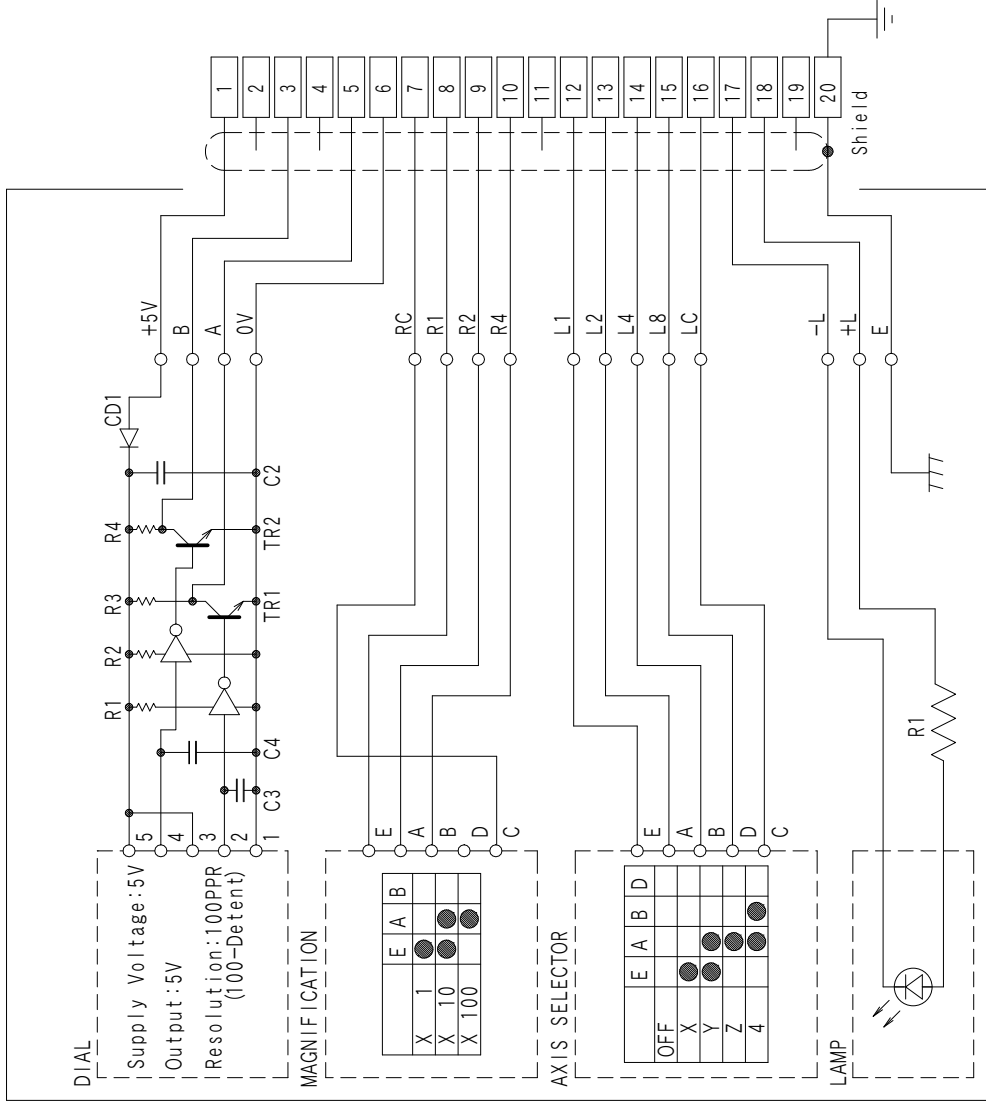
Terminal No.	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	-	Red	
3	B	Orange	Dial Channel B Output (0/5V)
4	-	Yellow	
5	A	Green	Dial Channel A Output (0/5V)
6	0V	Blue	Dial 0VDC
7	COM	Purple	Common Terminal of Multiplication Switch
8	X1	Gray	X1
9	X10	White	X10
10	X100	Black	X100
11	X	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 +24VDC
19	-	Light brown	
20	E		Shielding Wire (connect to GND)

* /BK:with Black line



Circuitry

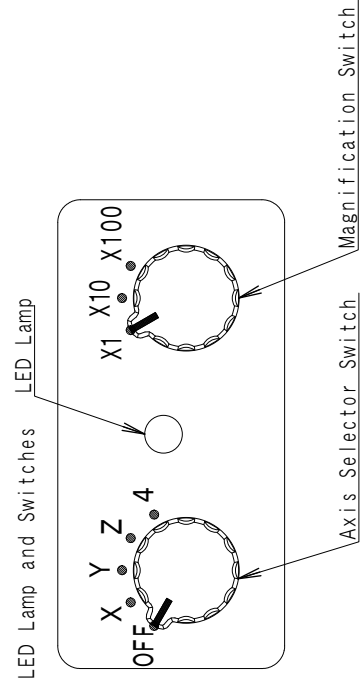
HC115A**03



Curl Code Wiring

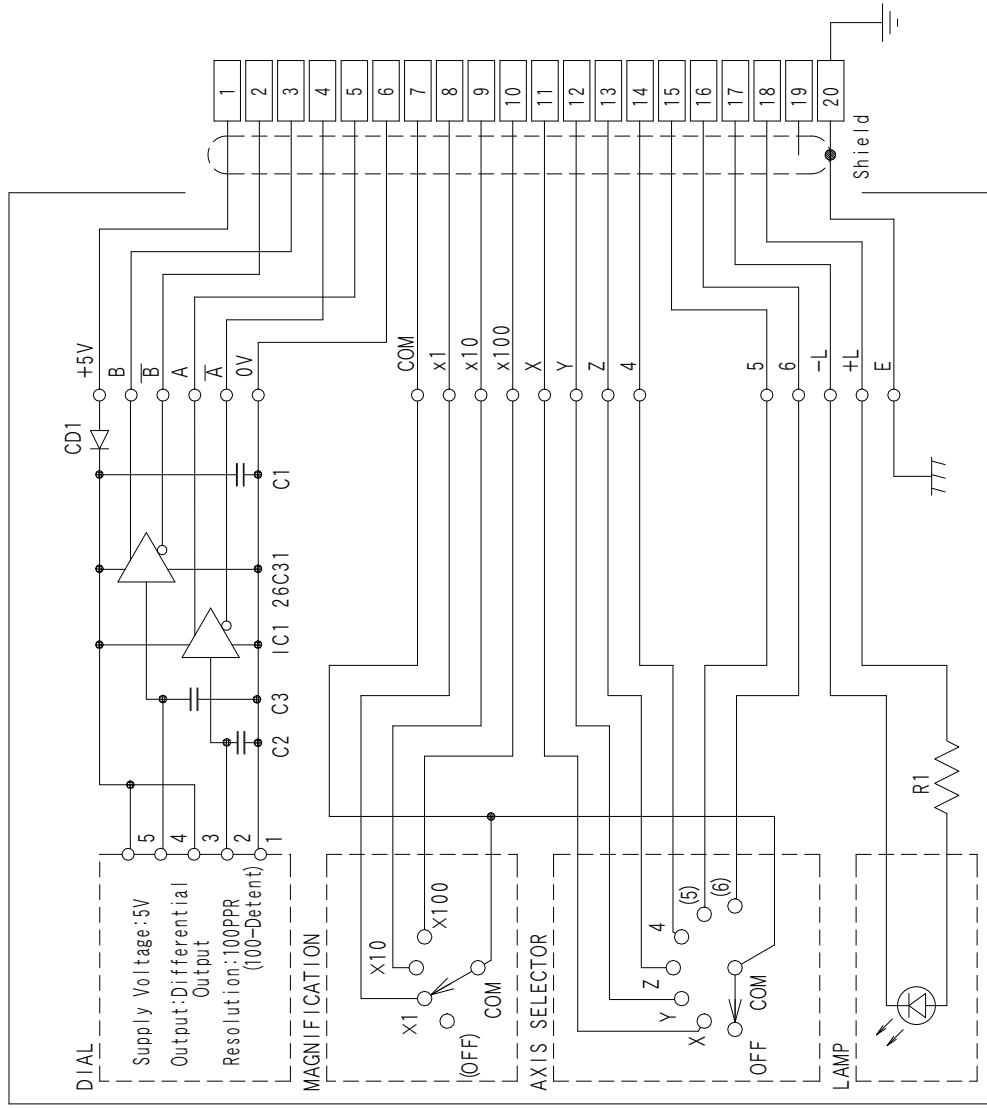
Terminal No	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	-	Red	
3	B	Orange	Dial Channel B Output (0/5V)
4	-	Yellow	
5	A	Green	Dial Channel A Output (0/5V)
6	0V	Blue	Dial 0VDC
7	RC	Purple	Common Terminal of Multiplication Switch
8	R1	Gray	Terminal E
9	R2	White	Terminal A
10	R4	Black	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

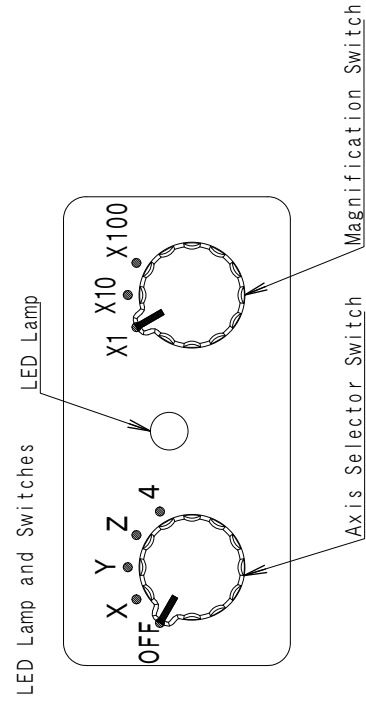
HC11DA**



Curl Code Wiring

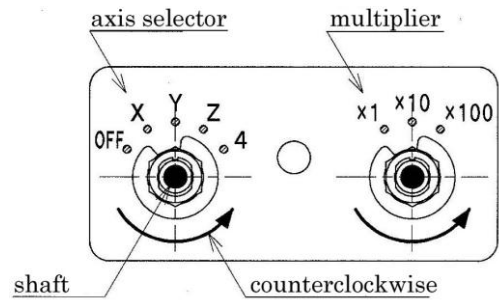
Terminal No	Terminal symbol	Color of wire	Function
1	+5V	Brown	Dial +5VDC
2	B	Red	Dial Channel B Inverting Output
3	B	Orange	Dial Channel B Output
4	A	Yellow	Dial Channel A Inverting Output
5	A	Green	Dial Channel A Output
6	0V	Blue	Dial 0VDC
7	COM	Purple	Common Terminal of Multiplication Switch
8	X1	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

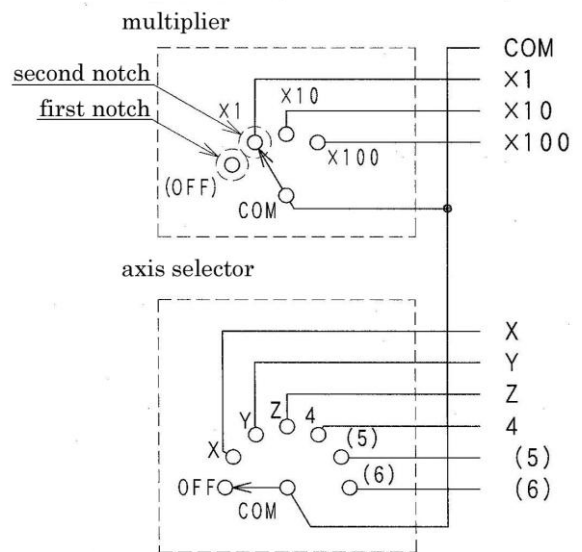


How to mount knobs for selector switches (HC1/HM/HT series)

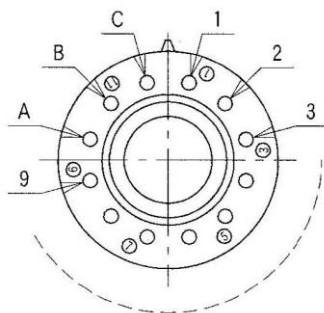
1. All switches select OFF circuits (position no.1) when fully turned counterclockwise. 1 click/2 clicks clockwise will make a connection of position no.2/no.3 with COM which feeds a signal for each.
2. If the indications on the plate begin with "OFF", "0" or any other indication to render disconnection, 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.



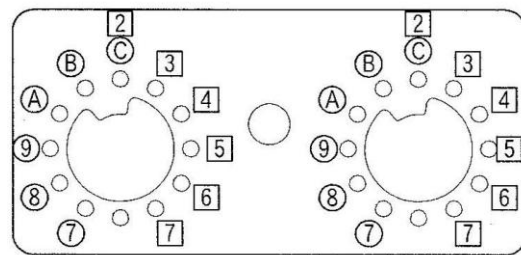
Picture 1. plate



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

Handy Manual Pulse Generator



HM Series



Outline

HM series have a variety of switches which can be customized according to your requests. The model is compact and lightweight, which is perfect for accurate and smooth manual operation.

Features

- Various switches available : Emergency switch (2 positions), side mounted (right/left) enabling switches, 2 rotary switches (as axis and multiplication selector etc.)
- Compact, thin-line and lightweight.
- Strong plate magnets available on back side. (optional)
- RoHS compliant (box/cord)
- Various types of curl cords provided along with connectors of all sorts at your request.

Specifications

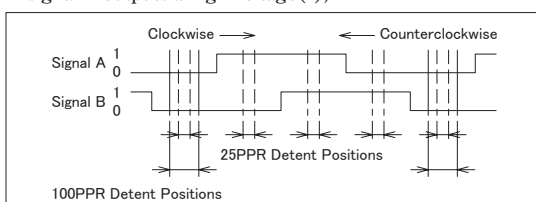
1. Body	
Dimension	145×73×35(mm)
LED light	DC24V Green
Enabling Switch	Available on both sides
Logo	Logo available on the wheel cover

2. Mechanical specifications	
2.1 Rotary Encoder Unit	

Output Voltage	DC5V±10%, DC12V±10%
Wheel	100 clicks / rotation 100 pulses or 25 pulses per rotation
Rotational Durability	Over 1,000,000 times

Output Waveform

- 1) Turning the shaft clockwise would generate the signal A when the signal B outputs a low voltage (0);
- 2) Rotating the shaft counter-clockwise would generate the signal A when the signal B outputs a high voltage (1);



* See RE45B page for details

2.2 Selector Switches

MR8A (Rotary switch) 25V15mA (AC/DC)
MR8C (Code switch) 15V10mA (AC/DC)
* See MR8A/MR8C pages for details

3. 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

4. Connector Unit

Connector	Dripproofed connector to be attached on the end of the cord optionally provided
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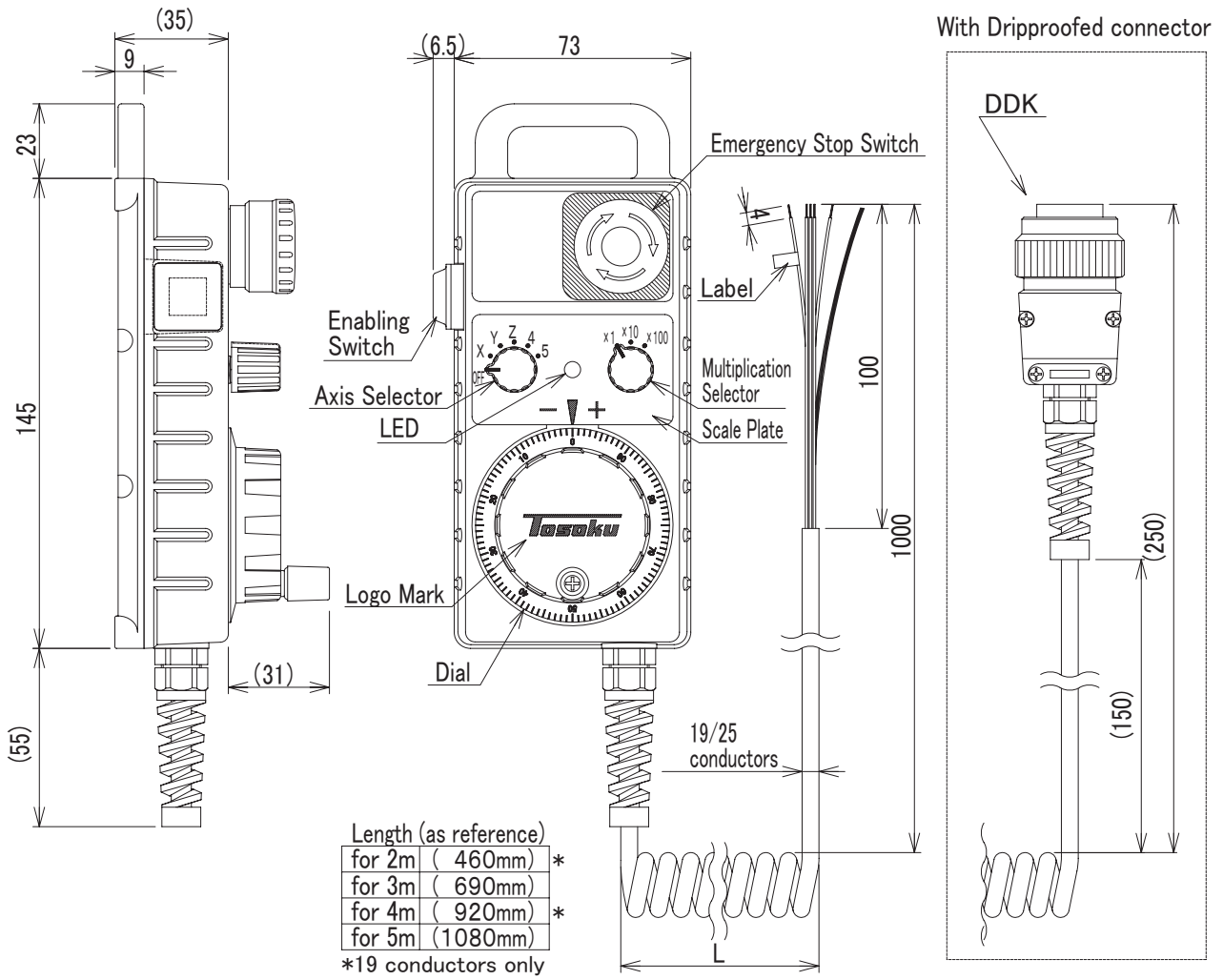
Warranty

- 1 year from the date of shipment.

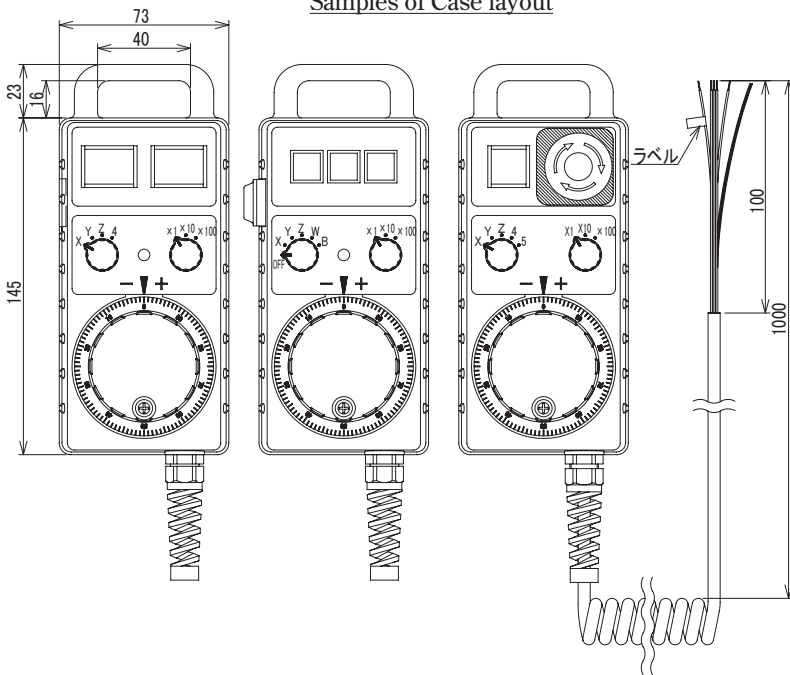
Dimensions (mm)

HM Unit with curl cord

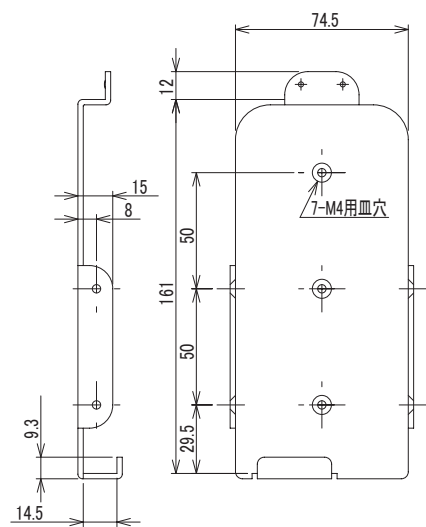
※ This drawing is an example, it may differ according to number of swithes etc.



Samples of Case layout



Original Holder



H M series Order Sheet (Print out this page for sending orders.)

We'll hand in to you a drawing in accordance with your order. The drawing shall be approved before starting in on production.

1) Select one from each spec table and fill blank spaces with " ".

Pulses/Rev.
100PPR
* 25PPR

*25PPR and yet 100 Clicks/Revolution

Power Supply	Output
5V	5V (330Ω Pull Up)
5V	Open Collector
5V	(for Line Driver)
12V	5V (2.2kΩ Pull Up)
12V	12V (2.2kΩ Pull Up)
12V	Open Collector
* 12V- 24V	for Photocoupler (Open Collector)

* Transistor will be "OFF" at every clicked positions.

(For other open collector output models, transistors will be "ON" at every clicked positions.)

Logo on the dial
None
with "TOSOKU" logo
with an original logo()

2-Position Enabling Switch
None
One on the left
On both sides

Emergency Switch (contacts)
None
Mounted ()

* 1 for (NO), 4 for (NC) maximum (1A/4B). Maximum of 4 contacts in total (1A3B or 4B).

Magnet on the backside
None
Mounted

Axis Selector/Multiplication Selector Switches
MR8C type (Gray code switch)
MR8A type (Selection switch)

Indications for Axis Selector (left)

e.g.	OFF, X, Y, Z, 4, 5

Indications for Multiplication Selector (right)

e.g.	x1, x10, x100

Curl Cord Length
2m Curl Cord (for only 19-conductor cord)
3m Curl Cord
4m Curl Cord (for only 19-conductor cord)
5m Curl Cord

* We will select either 19-conductor cord or 25-conductor cord to cover your requested specs

Waterproofed Connector (for curl cord)
None
Male connector (EBSP2119MG-D, DDK)
Female connector (EBSP2119FGS-D, DDK)

* Fill in both spaces to order both connectors.

2) Other options

Other options to request
(e.g.) Switches with LED illumination x 2 2 contact selector switch x 1



Rotary Encoders
Pulse Generators
Rotary Switches

Code Switches
Lever Switches
Trackballs

Handy Manual Pulse Generator



HR Series

Outline

HR series provide you comfort in long time use and safety with various options of switches.

Features

- Ergonomically designed to be held with one hand
- 3-position (off-on-off) switch available on both sides
- RoHS compliant (box/cord)
- Upper part is free to design and allows various kinds of switches (including emergency stop button) to be set
- HR series also provide you various line-up of switches to be set on the middle part:
DP - the digital code switch series, RS400 - the rotary switch series etc.
- Strong plate magnets available on back side. (optional)
- Various types of curl cords provided along with connectors by all sorts of your request

Specifications

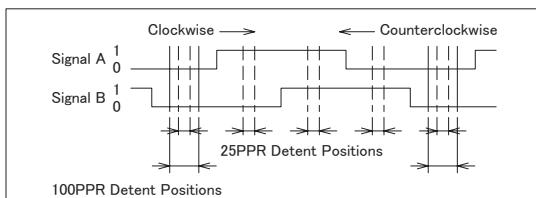
1. Body	
Dimension	190×100×50.5(mm)
Enabling Switch	Available on both sides
Other Features	Logo available on the wheel cover

2. Mechanical specifications	
2.1 Rotary Encoder Unit	

Output Voltage	DC5V±10%, DC12V±10%
Wheel	100 clicks / rotation 100 pulse or 25 pulses per rotation
Rotational Durability	Over 1,000,000 times

Output Waveform

- 1) Turning the shaft clockwise would generate the signal A when the signal B outputs a low voltage (0);
- 2) Rotating the shaft counter-clockwise would generate the signal A when the signal B outputs a high voltage(1);



* See RE45B page for details

2.2 Selector Switches

* See RS400/DP pages for details

3. Curl/Straight Cords	
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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

4. Connector Unit	
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Connector	Dripproofed connector to be attached on the end of the cord optionally provided
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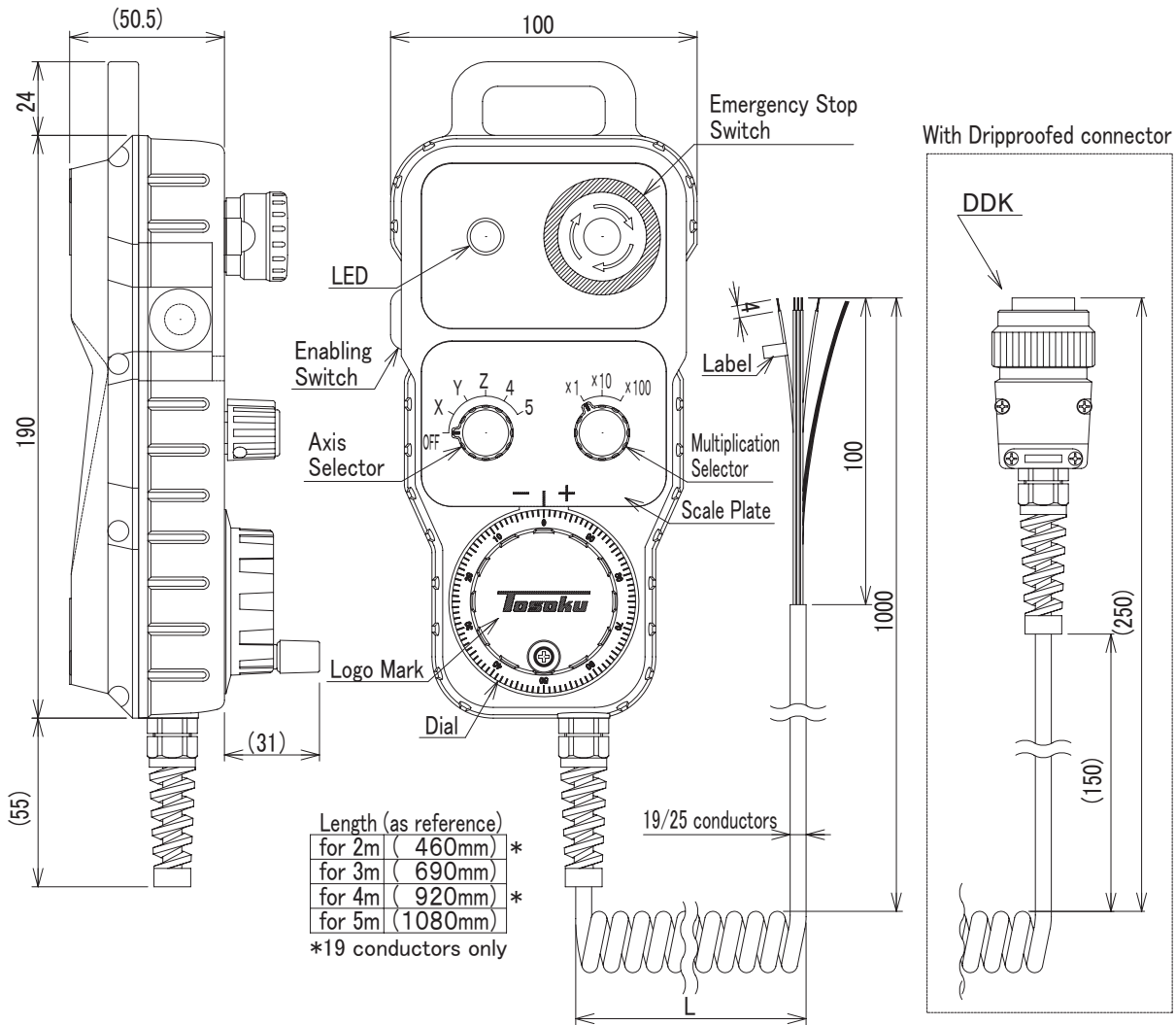
Warranty

- 1 year from the date of shipment.

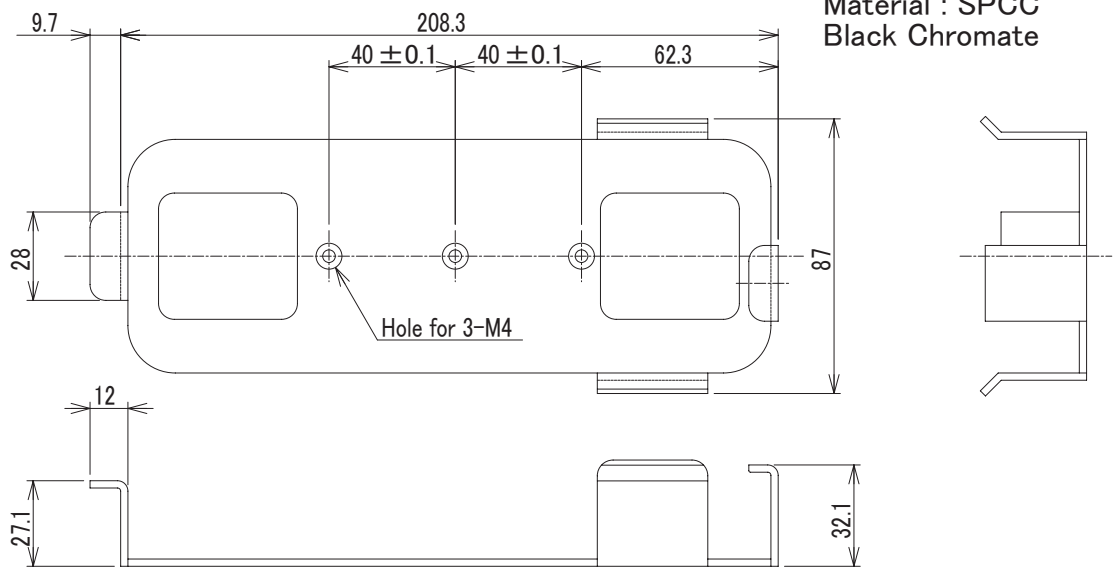
Dimensions (mm)

HR Unit with curl cord

※ This drawing is an example, it may differ according to number of swithes etc.



Original Holder



H R series Order Sheet (Print out this page for sending orders.)

We'll hand in to you a drawing in accordance with your order. The drawing shall be approved before starting in on production.

1) Select one from each spec table and fill blank spaces with " ".

Pulses/Rev.	
<input type="checkbox"/>	100PPR
* <input type="checkbox"/>	25PPR

*25PPR and yet 100 Clicks/Revolution

Power Supply	Output
<input type="checkbox"/>	5V 5V (330Ω Pull Up)
<input type="checkbox"/>	5V Open Collector
<input type="checkbox"/>	5V (for Line Driver)
<input type="checkbox"/>	12V 5V (2.2kΩ Pull Up)
<input type="checkbox"/>	12V 12V (2.2kΩ Pull Up)
<input type="checkbox"/>	12V Open Collector
* <input type="checkbox"/>	12V- for Photocoupler
24V	(Open Collector)

* Transistor will be "OFF" at every clicked positions.

(For other open collector output models, transistors will be "ON" at every clicked positions.)

Logo on the dial	
<input type="checkbox"/>	None
<input type="checkbox"/>	with "TOSOKU" logo
<input type="checkbox"/>	with an original logo()

3-Positions Enabling Switch (contacts)	
<input type="checkbox"/>	None
<input type="checkbox"/>	One on the left()
<input type="checkbox"/>	On both sides()

* Assigned contacts should be 2 or less for normally open (NO) and 2 or less for normally closed (NC). (2A2B maximum.)

Emergency Switch (contacts)	
<input type="checkbox"/>	None
<input type="checkbox"/>	Mounted ()

* 1 for (NO), 4 for (NC) maximum (1A/4B). Maximum of 4 contacts in total (1A3B or 4B).

Magnet on the backside	
<input type="checkbox"/>	None
<input type="checkbox"/>	Mounted

Axis Selector/Multiplication Selector Switches	
<input type="checkbox"/>	Gray code switch
<input type="checkbox"/>	Binary code switch
<input type="checkbox"/>	Selection switch

Indications for Axis Selector (left)

e.g.	OFF, X, Y, Z, 4, 5
<input type="checkbox"/>	

Indications for Multiplication Selector (right)

e.g.	x1, x10, x100
<input type="checkbox"/>	

Curl Cord Length	
<input type="checkbox"/>	2m Curl Cord (for only 19-conductor cord)
<input type="checkbox"/>	3m Curl Cord
<input type="checkbox"/>	4m Curl Cord (for only 19-conductor cord)
<input type="checkbox"/>	5m Curl Cord

* We will select either 19-conductor cord or 25-conductor cord to cover your requested specs

Waterproofed Connector (for curl cord)	
<input type="checkbox"/>	None
<input type="checkbox"/>	Male connector (EBSP2119MG-D, DDK)
<input type="checkbox"/>	Female connector (EBSP2119FGS-D, DDK)

* Fill in both spaces to order both connectors.

2) Other options

Other options to request	
(e.g.)	Switches with LED illumination x 2
	2 contact selector switch x1
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	
<input type="checkbox"/>	



Rotary Encoders
Pulse Generators
Rotary Switches

Code Switches
Lever Switches
Trackballs

Handy Manual Pulse Generator



HS Series

Outline

HS is a free-to-design handheld manual pulse generator which allows wide variety of switches laid out at your service.

Features

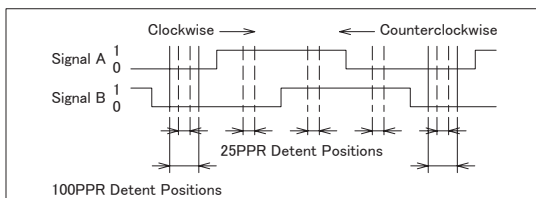
- Optional layout of switches
- 3-position (off-on-off) switch available on both sides
- RoHS compliant (box/cord)
- Emergency stop button also available
- Holder provided
- Strong plate magnet as an additional accessory. (optional)
- Various types of curl cords provided along with connectors by all sorts of your request

Specifications

1. Body	
Dimension	180×96×50(mm)
Enabling Switch	Available on both sides
Other Features	Logo available on the wheel cover

2. Mechanical specifications	
2.1 Rotary Encoder Unit	
Output Voltage	DC5V±10%, DC12V±10%
Wheel	100 clicks / rotation 100 puluse or 25 pulses per rotation
Rotational Durability	Over 1,000,000 times
<u>Output Waveform</u>	

- 1) Turning the shaft clockwise would generate the signal A when the signal B outputs a low voltage (0);
- 2) Rotating the shaft counter-clockwise would generate the signal A when the signal B outputs a high voltage(1);



* See RE45B page for details

2.2 Selector Switches	
RS400 (Rotary switch)	
AC 30V1.0A / 200V0.2A	
DC 20V1.0A / 200V0.1A (Resistance Load)	
DP (Code switch)	
AC 5V0.5V/50V0.05A	
DC 5V0.25A / 25V0.05A (Resistance Load)	

* See RS400/DP pages for details

3. 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

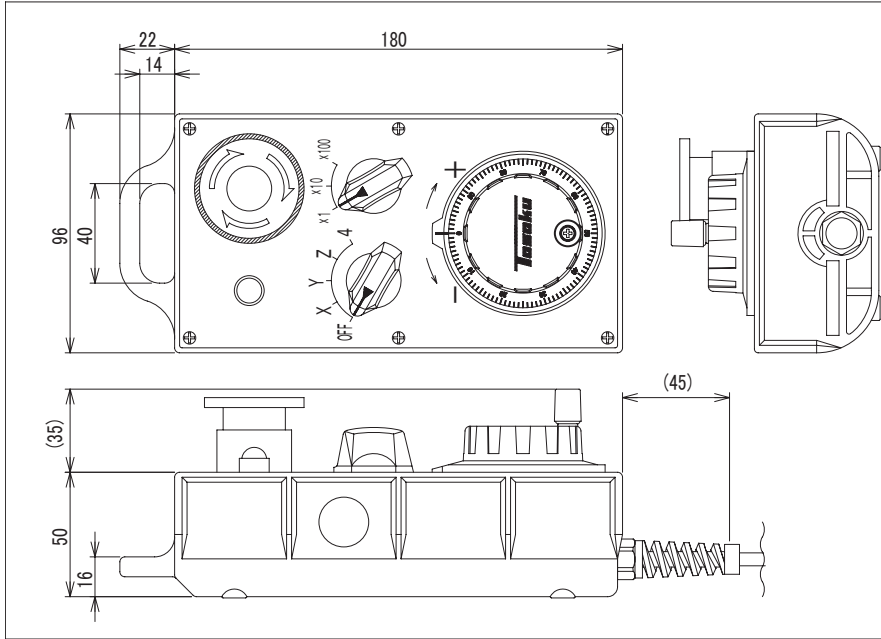
4. Connector Unit	
Connector	Dripproofed connector to be attached on the end of the cord optionally provided

Warranty

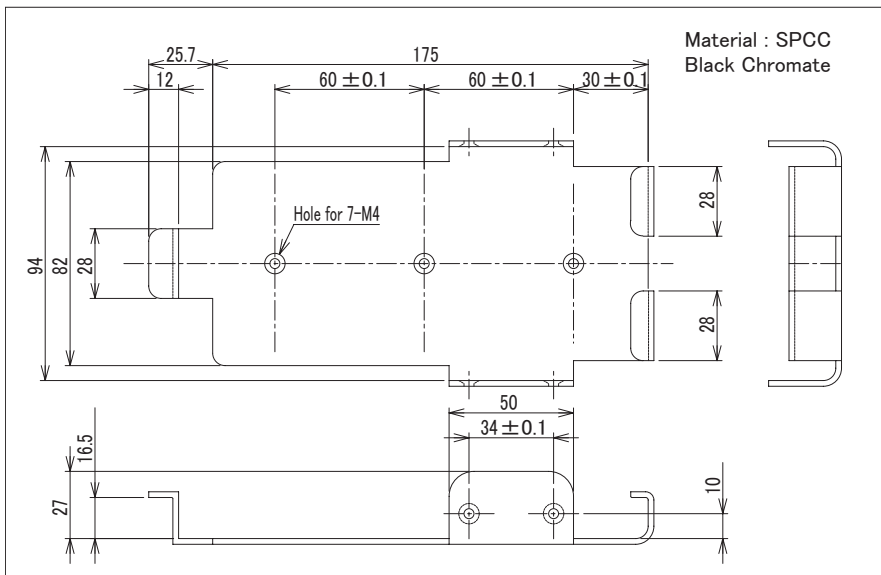
- 1 year from the date of shipment.

Dimensions (mm)

HS Main unit ※ This drawing is an example, it may differ according to number of swithes etc.



HS Original holder



HS Layout examples

