Tokyo Sokuteikizai Co., Ltd.

Handy Manual Pulse Generator Catalogue

HT  thin-line, 3 position enabling switch available  P. 02

HC1  compact, light  P. 05

HM  compact, emergency stop button/enabling switch available  P. 11

HR  3 position enabling switch available  P. 14

HS  resin box, free-to-design  P. 17

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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>170×80×39(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>LED light</td>
<td>DC24V Green</td>
</tr>
<tr>
<td>Enabling switches</td>
<td>Available on both sides</td>
</tr>
<tr>
<td>Logo</td>
<td>Logo available on the wheel cover</td>
</tr>
</tbody>
</table>

2. Mechanical specifications

2.1 Rotary Encoder Unit

| Output Voltage | DC5V±10%, DC12V±10% or 12~24V |
| Wheel          | 100 clicks / 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);

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) |

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 switches etc.

Material: SPCC
Cathodic Electrodeposition Coating

Original Holder

Material: SPCC
Cathodic Electrodeposition Coating
**HT Series Order Sheet**

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.

<table>
<thead>
<tr>
<th>*</th>
<th>100PPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>*25PPR and yet 100 Clicks/Revolution</td>
<td></td>
</tr>
</tbody>
</table>

### Power Supply

<table>
<thead>
<tr>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td>5V (330Ω Pull Up)</td>
</tr>
<tr>
<td>5V Open Collector</td>
</tr>
<tr>
<td>5V (for Line Driver)</td>
</tr>
<tr>
<td>12V (2,2kΩ Pull Up)</td>
</tr>
<tr>
<td>12V Open Collector</td>
</tr>
<tr>
<td>12V- for Photocoupler</td>
</tr>
<tr>
<td>24V (Open Collector)</td>
</tr>
</tbody>
</table>

* 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)**

<table>
<thead>
<tr>
<th>e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>OFF, X, Y, Z, 4, 5</td>
</tr>
</tbody>
</table>

**Indications for Multiplication Selector (right)**

<table>
<thead>
<tr>
<th>e.g.</th>
</tr>
</thead>
<tbody>
<tr>
<td>x1, x10, x100</td>
</tr>
</tbody>
</table>

**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.

**Other options to request**

- Switches with LED illumination x 2
- 2 contact selector switch x 1

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TOKYO SOKUTEIKIZAI Co., Ltd.

http://www.tosoku-inc.co.jp/
HC1 is the most compact model of all our MPG series, developed for usage in numerous industrial areas.

**Outline**

Handy Manual
Pulse Generator

HC1 Series

**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**

<table>
<thead>
<tr>
<th>Specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Body</td>
<td>124x73x26(mm)*</td>
</tr>
<tr>
<td>LED Visible Indicator</td>
<td>DC24V Green</td>
</tr>
<tr>
<td>Noise Immunity</td>
<td>EN50082-2 compliant</td>
</tr>
<tr>
<td>Other Features</td>
<td>Logo available on the wheel cover</td>
</tr>
<tr>
<td>* excluding hook, switch and knob</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Mechanical specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Rotary Encoder Unit</td>
<td></td>
</tr>
<tr>
<td>2.2 Selector Switches</td>
<td></td>
</tr>
<tr>
<td>* See RE45B page for details</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>3. Environmental specifications</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Operating temperature</td>
<td>-10°C ~ +60°C</td>
</tr>
<tr>
<td>Storage temperature</td>
<td>-40°C ~ +70°C</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>5. Connector Unit</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Waterproofed connector to be attached on the end of the cord optionally provided</td>
</tr>
</tbody>
</table>

**Warranty**

- 1 year from the date of shipment.
Dimensions (mm)

HC1 main unit with curl cord

Part Number Designation

<table>
<thead>
<tr>
<th>Name of series</th>
<th>2</th>
<th>1</th>
<th>03</th>
</tr>
</thead>
<tbody>
<tr>
<td>HC1</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>number of pulse</th>
<th>100 FPR</th>
<th>25 FPR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>12V</td>
<td>5V</td>
</tr>
<tr>
<td>2</td>
<td>5V</td>
<td>(a differential output)</td>
</tr>
<tr>
<td>2</td>
<td>24V</td>
<td>(for photocoupler only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Optional selector switch</th>
</tr>
</thead>
<tbody>
<tr>
<td>none</td>
</tr>
<tr>
<td>selection switch</td>
</tr>
<tr>
<td>(Gray code 30° type)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Options of connectors</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Curl Cord</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
</tr>
<tr>
<td>2</td>
</tr>
<tr>
<td>3</td>
</tr>
<tr>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Logo Mark on Dial</th>
</tr>
</thead>
<tbody>
<tr>
<td>B</td>
</tr>
<tr>
<td>C</td>
</tr>
<tr>
<td>D</td>
</tr>
</tbody>
</table>

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 request.

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

HC115A***

Supply Voltage: 5V
Output: 5V
Resolution: 100PPR

Magnification Switch

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

LED Lamp and Switches

Axis Selector Switch
Magnification Switch

HC1-7 Mar. 21, 2012
Circuitry

HC115A***03

Supply Voltage: 5V
Output: 5V
Resolution: 100PPR (100-Detent)

Circuitry

Magnification

DIAL

LAMP

Axis Selector

HC1-6 Mar. 21, 2012

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

Dial Channel B Output (0/5V)
Dial Channel A Output (0/5V)
Common Terminal of Multiplication Switch
Terminal E
Terminal A
Terminal B
Terminal D
Common Terminal of Axis Selector Switch
LED Lamp (-)
LED Lamp +24VDC
Shielding Wire (connect to GND)

HC1-6 Mar. 21, 2012
Circuitry

HC11DA***

DIAL
Supply Voltage: 5V
Output: Differential Output
Resolution: 100PPR

MAGNIFICATION
X1
x10
x100

AXIS SELECTOR
OFF
COM

LAMP
OFF
COM

Output: (100 - Detent)

Curil Code Wiring

<table>
<thead>
<tr>
<th>Terminal</th>
<th>Terminal symbol</th>
<th>Color of wire</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>+5V</td>
<td>Brown</td>
<td>Dial +5VDC</td>
</tr>
<tr>
<td>2</td>
<td>B</td>
<td>Red</td>
<td>Dial Channel B Inverting Output</td>
</tr>
<tr>
<td>3</td>
<td>B</td>
<td>Orange</td>
<td>Dial Channel B Output</td>
</tr>
<tr>
<td>4</td>
<td>A</td>
<td>Yellow</td>
<td>Dial Channel A Inverting Output</td>
</tr>
<tr>
<td>5</td>
<td>A</td>
<td>Green</td>
<td>Dial Channel A Output</td>
</tr>
<tr>
<td>6</td>
<td>0V</td>
<td>Blue</td>
<td>Dial 0VDC</td>
</tr>
<tr>
<td>7</td>
<td>COM</td>
<td>Purple</td>
<td>Common Terminal of Multiplication Switch</td>
</tr>
<tr>
<td>8</td>
<td>X1</td>
<td>Gray</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>X10</td>
<td>White</td>
<td>X10</td>
</tr>
<tr>
<td>10</td>
<td>X100</td>
<td>Black</td>
<td>X100</td>
</tr>
<tr>
<td>11</td>
<td>X</td>
<td>Pink</td>
<td>Axis X</td>
</tr>
<tr>
<td>12</td>
<td>Y</td>
<td>Light blue</td>
<td>Axis Y</td>
</tr>
<tr>
<td>13</td>
<td>Z</td>
<td>Yellow-green</td>
<td>Axis Z</td>
</tr>
<tr>
<td>14</td>
<td>4</td>
<td>Light purple</td>
<td>Axis 4</td>
</tr>
<tr>
<td>15</td>
<td>5</td>
<td>Color-less</td>
<td>(Axis 5)</td>
</tr>
<tr>
<td>16</td>
<td>5</td>
<td>Color-less/BK</td>
<td>(Axis 6)</td>
</tr>
<tr>
<td>17</td>
<td>-L</td>
<td>Light blue/BK</td>
<td>LED Lamp (-)</td>
</tr>
<tr>
<td>18</td>
<td>+L</td>
<td>Yellow-green/BK</td>
<td>LED Lamp +125VDC</td>
</tr>
<tr>
<td>19</td>
<td>-</td>
<td>Light brown</td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>E</td>
<td>Shielding wire (connect to GND)</td>
<td></td>
</tr>
</tbody>
</table>

* /BK: with Black line

LED Lamp and Switches

LED Lamp

Axis Selector Switch

Magnification Switch

HC1-5 Mar. 21, 2012
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.

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.
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

<table>
<thead>
<tr>
<th>1. Body</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
<td>145×73×35(mm)</td>
</tr>
<tr>
<td>LED light</td>
<td>DC24V Green</td>
</tr>
<tr>
<td>Enabling Switch</td>
<td>Available on both sides</td>
</tr>
<tr>
<td>Logo</td>
<td>Logo available on the wheel cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Mechanical specifications</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Rotary Encoder Unit</td>
</tr>
<tr>
<td>Output Voltage</td>
</tr>
<tr>
<td>Wheel</td>
</tr>
<tr>
<td>Rotational Durability</td>
</tr>
<tr>
<td>Output Waveform</td>
</tr>
</tbody>
</table>

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
  - Also available

4. Connector Unit

- Connector
  - Driproofed connector to be attached on the end of the cord optionally provided

Warranty

- 1 year from the date of shipment.

* See RE45B page for details
Dimensions (mm)

HM Unit with curl cord

※ This drawing is an example, it may differ according to number of switches etc.
**H M series Order Sheet**  
(Include 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 "-".

<table>
<thead>
<tr>
<th>Pules/Rev.</th>
<th>*25PPR and yet 100 Clicks/Revolution</th>
</tr>
</thead>
<tbody>
<tr>
<td>100PPR</td>
<td></td>
</tr>
<tr>
<td>25PPR</td>
<td></td>
</tr>
</tbody>
</table>

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

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- | 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
- None
- with "TOSOKU" logo
- with an original logo

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

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

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

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TOKYO SOKUTEIKIZAI Co., Ltd.  
http://www.tosoku-inc.co.jp/
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

<table>
<thead>
<tr>
<th>1. Body</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dimension</td>
<td>190×100×50.5(mm)</td>
</tr>
<tr>
<td>Enabling Switch</td>
<td>Available on both sides</td>
</tr>
<tr>
<td>Other Features</td>
<td>Logo available on the wheel cover</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2. Mechanical specifications</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 Rotary Encoder Unit</td>
<td></td>
</tr>
<tr>
<td>Output Voltage</td>
<td>DC5V±10%, DC12V±10%</td>
</tr>
<tr>
<td>Wheel</td>
<td>100 clicks / rotation</td>
</tr>
<tr>
<td></td>
<td>100 pulses or 25 pulses per rotation</td>
</tr>
<tr>
<td>Rotational Durability</td>
<td>Over 1,000,000 times</td>
</tr>
<tr>
<td>Output Waveform</td>
<td></td>
</tr>
<tr>
<td>1) Turning the shaft clockwise would generate the signal A when the signal B outputs a low voltage (0);</td>
<td></td>
</tr>
<tr>
<td>2) Rotating the shaft counter-clockwise would generate the signal A when the signal B outputs a high voltage (1);</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>2.2 Selector Switches</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>* See RS400/DP pages for details</td>
<td></td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>4. Connector Unit</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Connector</td>
<td>Drip proofed connector to be attached on the end of the cord optionally provided</td>
</tr>
</tbody>
</table>

Warranty

- 1 year from the date of shipment.
HR Unit with curl cord

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

Dimensions (mm)

Original Holder

Material: SPCC Black Chromate

Hole for 3-M4
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 "-".

<table>
<thead>
<tr>
<th>Pulses/Rev.</th>
<th>100PPR</th>
<th>25PPR</th>
</tr>
</thead>
</table>

*25PPR and yet 100 Clicks/Revolution

Axis Selector/ Multiplication Selector Switches

Gray code switch
Binary code switch
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

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

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

Waterproofed Connector (for curl cord)

None
Male connector (EBSP2119MG-D, DDK)
Female connector (EBSP2119FGS-D, DDK)

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

2) Other options

Other options to request

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Switches with LED illumination</td>
<td>x 2</td>
</tr>
<tr>
<td>2 contact selector switch</td>
<td>x 1</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Dimension</th>
<th>180×96×50(mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enabling switch</td>
<td>Available on both sides</td>
</tr>
<tr>
<td>Other features</td>
<td>Logo available on the wheel cover</td>
</tr>
</tbody>
</table>

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); |

2.2 Selector Switches

RS400 (Rotary switch)
- AC 30V1.0A / 200V0.2A
- DC 20V1.0A / 200V0.1A (Resistence 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 switches etc.

**HS Original holder**

Material: SPCC  
Black Chromate

**HS Layout examples**