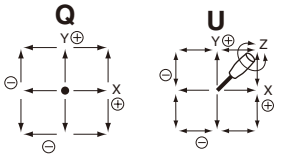
H40JE

● 3-dimensional coordinate ● With a hall effect IC

● Nomenclature

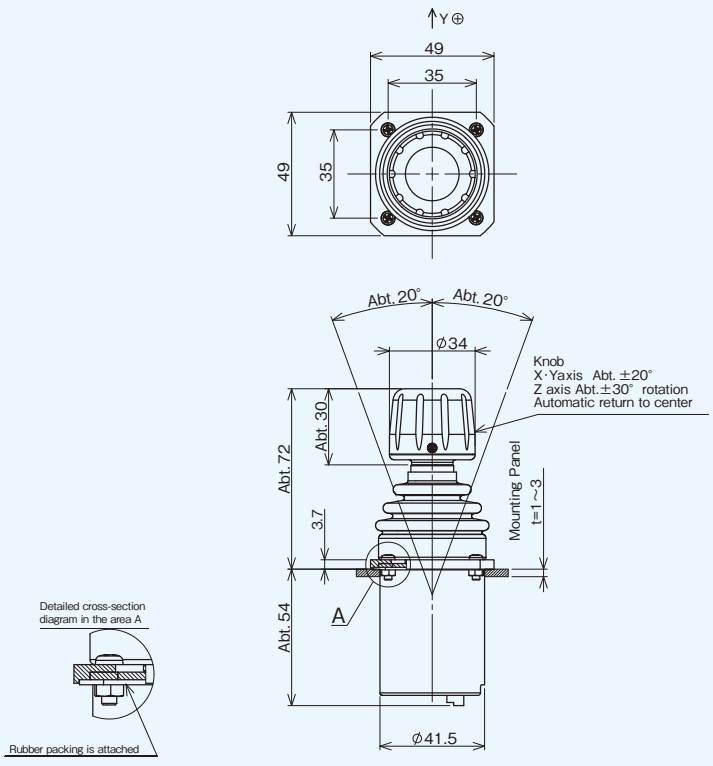
S means special mechanical specifications not applicable to our standard.
H hall effect IC type resistive element incorporated.
40 means approx. size of base housing in mm.
J means joystick controller.
Kind of types
E means 3-dimensional coordinate digital code output type.
K means square shape.
Mechanism
Z means 3 dimensional coordinate.
Available directions of lever operation
Q: Square-directional 360°operating angle.
U: In addition to 360° square-directional operation, 3-dimensional coordinate operation is possible by the rotating knob in which a hall effect type potentiometer is incorporated.



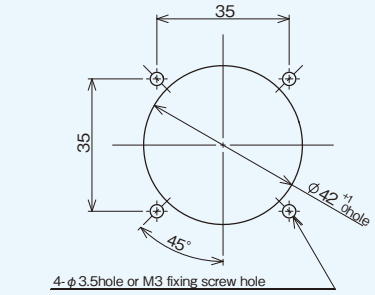
S H 40 J E K - Z U - 3 4 B 0 R3 G - 00000

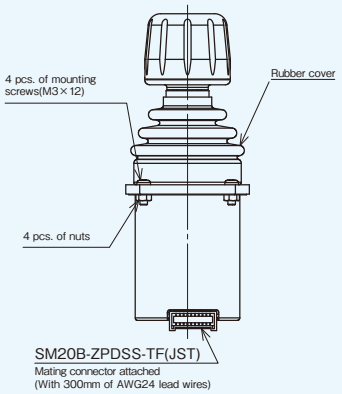
Number of potentiometers to be incorporated
0···no potentiometer incorporated. **1**···1 potentiometer incorporated.
2···2 potentiometers incorporated. **3**···3 potentiometers incorporated.
bit number 4: 4 bit **5:** 5 bit
Code B: Binary code **G:** Gray code
Number of switches to be incorporated
0···no switch incorporated. **1**···1 push button switch incorporated.
With spring return device:
R3: with spring return device for 3-dimensional coordinate.
Mounting accessories:
G: with dust proof rubber cover. **P**: with sub-panel for mounting.
Special part number:
In the case we produce customized products, we add 4-digit or 5-digit branch number.

● Standard Dimensions



■ Panel Arrangements





H40JEK-ZU-34B0R3G
Standard

STANDARD SPECIFICATIONS

Mechanical Performance

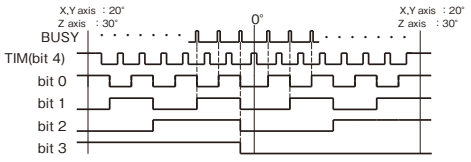
Controlling range of operating lever	3-dimensional coordinate type. X and Y directions: Approx. ±20°from center position. Z direction: Approx. ±30° from center position.
Operating force	Standard spring return device (Automatically return to center) X and Y directions: Approx. 1 ～4N (100 ～400gf) Z direction: Approx. 40 ～80mN･m (400 ～800gf･cm)
Operating temperature range	–20°C～＋60°C
Vibration	10～55Hz 98m/s^2
Shock	294m/s^2
Life expectancy	Approx. 5,000,000 operations for X and Y axes. Approx. 3,000,000 operations for Z axis.
Mass	Approx. 120g

Electrical Performance

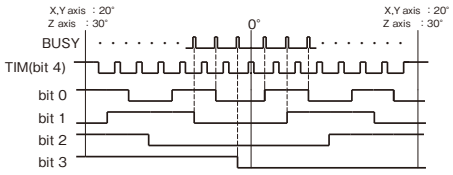
Hall effect IC type resistive element incorporated	Applied voltage: 5V±10% D.C. Open drain output, Absolute maximum ratings 50V D.C., Maximum sink current 20mA for each bit output, Capacitive load within 1nF for each bit output, Current consumption within 54mA Electrical rotating angle: X and Y-axis: Approx. ±20° Z-axis: Approx. ±30° Output temperature characteristics: Within 0.8°(converted into operating angle)
Dielectric strength	1 minute at 500V A.C.
Insulation resistance	Over 1,000MΩ at 500V D.C.
EMS durability	100V/m (80MHz～6GHz Based on ISO11452-1～-3)
ESD durability	±8kV contact ±15kV aerial discharge (Based on IEC61000-4-2)

Output Characteristic

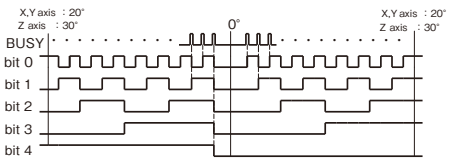
4 bit binary code



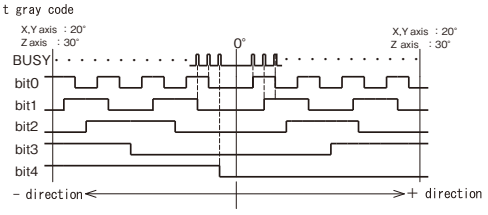
4 bit gray code



5 bit binary code



5 bit gray code



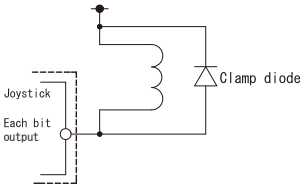
Connector Wiring Diagram

Terminal	Wire color	Assignment
E1	Brown	IN
E2	Gray	GND
E3	Red	X axis bit 0
E4	Orange	X axis bit 1
E5	Yellow	X axis bit 2
E6	Green	X axis bit 3
E7	Blue	X axis bit 4 ※1
E8	Red(POT-Y)	Y axis bit 0
E9	Orange(POT-Y)	Y axis bit 1
E10	Yellow(POT-Y)	Y axis bit 2
E11	Green(POT-Y)	Y axis bit 3
E12	Blue(POT-Y)	Y axis bit 4 ※1
E13	Red(POT-Z)	Z axis bit 0
E14	Orange(POT-Z)	Z axis bit 1
E15	Yellow(POT-Z)	Z axis bit 2
E16	Green(POT-Z)	Z axis bit 3
E17	Blue(POT-Z)	Z axis bit 4 ※1
E18	Purple	BUSY ※2
E19	White	NC
E20	Black	NC

The description in () is printed on the indication tube.

Note 1:
FET in the circuit is OFF when each bit output is High level.
FET in the circuit is ON when each bit output is Low level.

Note 2:
In the case activating inductive loads such as motors, relays etc., you need to connect a clamp diode.



※1 In the case of 4 bit binary code or 4 bit gray code, assigned to TIM signal
※2 Figure A shows how the output and Busy signals are updated.
In the case the output code is the same before and after the update, Busy signal is skipped. (See Figure B)

Figure A

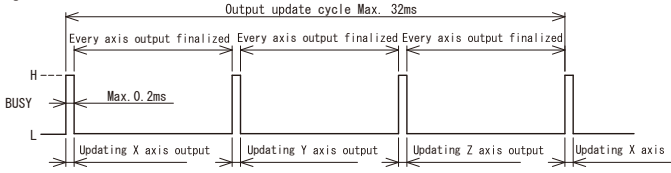


Figure B(In the case Y axis is skipped)