

# JOYSTICK CONTROLLERS SPECIFICATIONS

- |              |   |                   |
|--------------|---|-------------------|
| 1. Model No. | Hard cover type   | Rubber cover type |
|              | Single output/each axis   | H30JHK-ZU-3SR3    |
|              | Dual, parallel output/axis  | H30JHK-ZU-3PR3    |
|              | Dual, cross output/axis   | H30JHK-ZU-3XR3    |
| 2. Mechanism | <b>3 axes control, hall effect contactless joystick<br/>With spring return device</b> |                   |

## MECHANICAL PERFORMANCES

- |                                    |  |   |
|------------------------------------|--|---|
| 3. Outer appearance and dimensions | <b>As per attached drawing No. 242-8012-2</b>  |   |
| 4. Mechanical operating angle      | <b>X and Y axes : Abt. <math>\pm 15^\circ</math><br/>Z axis : Abt. <math>\pm 30^\circ</math></b> |   |
| 5. Operating force                 |  |   |
|                                    | X and Y axes   | Z axis                                    |
| Hard cover type                    | <b>Abt. 1.5~3N (Abt. 150~300gf)</b>  | <b>Abt. 15~30mN.m (Abt. 150~300gf.cm)</b> |
| Rubber cover type                  | <b>Abt. 1.5~3.5N (Abt. 150~350gf)</b>  | <b>Abt. 15~30mN.m (Abt. 150~300gf.cm)</b> |

## ELECTRICAL PERFORMANCES

- |  |  |
|--|--|
| 6. Current consumption                                     | <b>Approx. 6mA per one axis, one output</b>  |
| 7. Independent linearity tolerance                         | <b><math>\pm 3\%</math> • FS</b>   |
| 8. Electrical rotating angle                               | <b>X and Y axes : Abt. <math>\pm 15^\circ</math> (Abt. <math>30^\circ</math> )<br/>Z axis : Abt. <math>\pm 30^\circ</math> (Abt. <math>60^\circ</math> )</b> |
| 9. Applied voltage   | <b>5VDC <math>\pm 10\%</math> (5VDC <math>\pm 0.5V</math>)</b>   |
| 10. Center return accuracy                                 | <b>2.5V <math>\pm 0.25V</math> (50% <math>\pm 5\%</math>)</b>  |
| 11. Load resistance  | <b>More than 10K <math>\Omega</math><br/>(More than 100K <math>\Omega</math> is recommendable)</b>   |
| 12. Output temperature characteristics                     | <b>Below <math>\pm 2.5\%</math> Vout • FS</b>  |
| 13. Temperature drift at center position                   | <b>Below <math>\pm 1.0\%</math> Vout • FS</b>  |
| 14. Dielectric strength                                    | <b>1 minute at 250VAC</b>  |
| 15. Insulation resistance                                  | <b>Over 100M <math>\Omega</math> at 250VDC</b>   |
| 16. Output characteristics and terminal connection diagram | <b>As per attached drawing No. 242-8012-1-3</b>  |

SYM.	DATE	DESCRIPTION	APPO.	DESIGNED	DRAWN	CHECKED	APPROVED	TITLE
				RY	RY	M.Y	K.S	MODEL NO. H30JHK-ZU-3(S,P,X)R3(G)
				DATE 10, MAR. 2005				DWG. NO. 242-8012-1-1
				 SAKAE TSUSHIN KOGYO CO., LTD. KANAGAWA JAPAN				SCALE / NTS. UNITS mm SHEET 1 OF 5


**OTHERS**

- 17. Operating temperature range                    **-20°C~+60°C (without freeze)**
- 18. Vibration    **10~55Hz, 98m/s<sup>2</sup> (10G)**  
**(According to MIL-STD-202F-204)**
- 19. Shock    **294m/s<sup>2</sup> (30G)**  
**(According to MIL-STD-202F-213)**
- 20. Mechanical life expectancy                    **Approx. 1,000,000 operations**

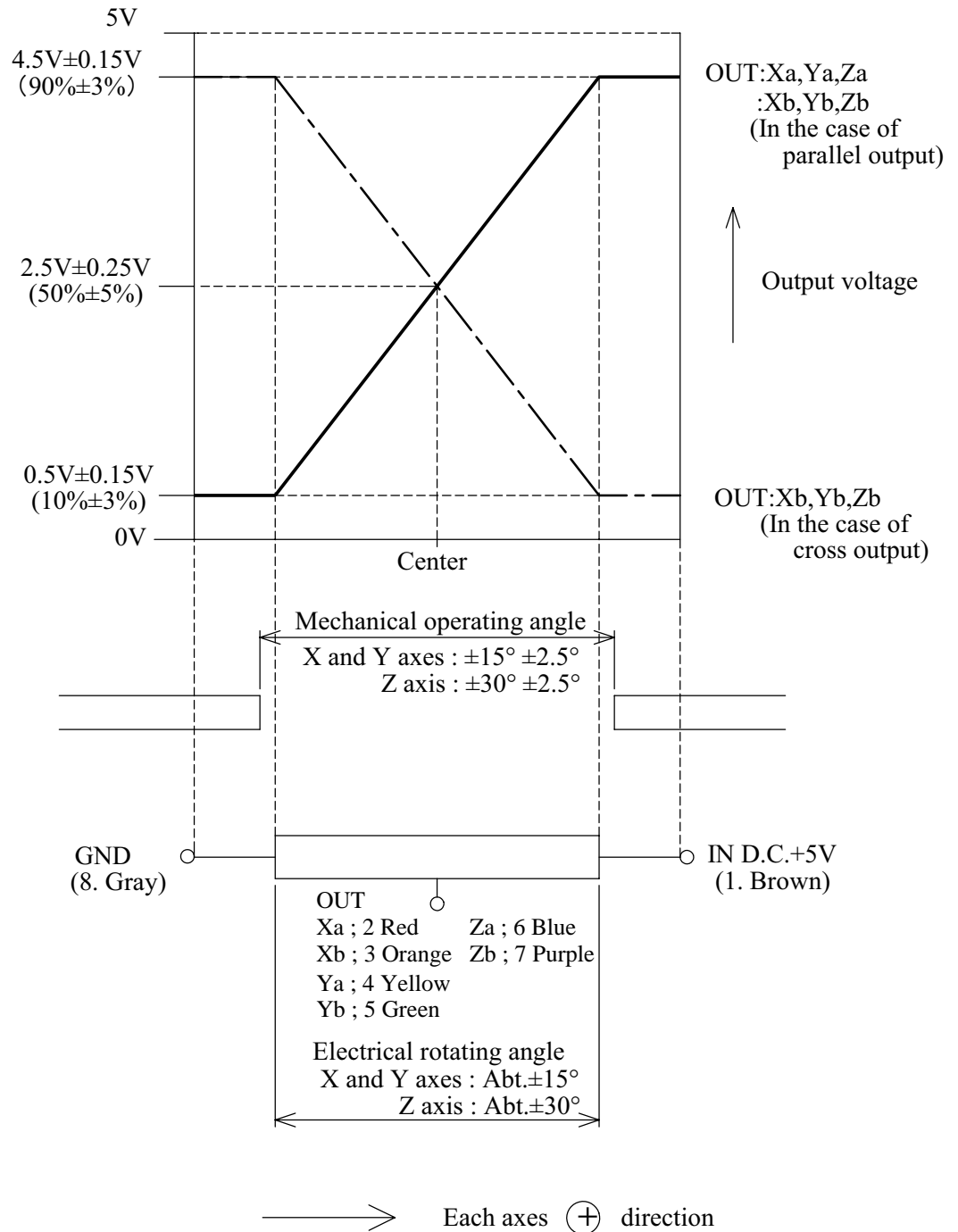
*(This item shows life expectancy shall be based on test conditions under which lever shall be moved forward and backward per each operation at the speed of 60 reciprocating motions per minute within its mechanical operating angle in normal room temperature.)*

- 21. Lever strength for X and Y axes                **Max. 50N (Max. 5kgf)**  
  
*(This value shows the value of static load to the part of knob.)*
- 22. Stopper strength for Z axis                    **Max. 0.5N · m (Max. 5kgf · cm)**  
  
*(This value shows the value of static load to the part of knob.)*
- 23. Ingress protection                                **IP = 40 (Hard cover type)**  
**IP = 54 (Rubber cover type)**  
  
*(This value shows the value from above panel towards knob only.)*
- 24. EMC Immunity                                    **50V/m**  
**(80MHz~1GHz, 1KHz, 80% Amplitude modulation)**
- 25. How to mount joystick controller              **As per attached drawing No. 242-8012-3**
- 26. Important notice for operating joystick controllers

- 1) Please refer to precautions for using joystick controllers in our joystick controller catalog.
- 2) In case of with spring return device, when repeating spring return action without gripping with hand, the life expectancy may be shorter than specified, because such operation may bring over worn out the resistance element of the potentiometer at the center position and other damages of inner construction. Lever operation is preferably made as slow and stable as possible.
- 3) When using or measuring, the voltage shall load to IN (input) terminal only as inverse voltage protection circuit is not equipped on contactless sensing system used on joystick controllers. Otherwise, the incorporated sensor may be damaged and burnt out.
- 4) Please refer to our precision potentiometers catalog respectively, about technical matters of potentiometers used in these joystick controllers.

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				 SAKAE TSUSHIN KOGYO CO., LTD. KANAGAWA JAPAN				DWG. NO. 242-8012-1-2
							SCALE / NTS.	UNITS

## OUTPUT CHARACTERISTICS AND CONNECTOR WIRING DIAGRAMS



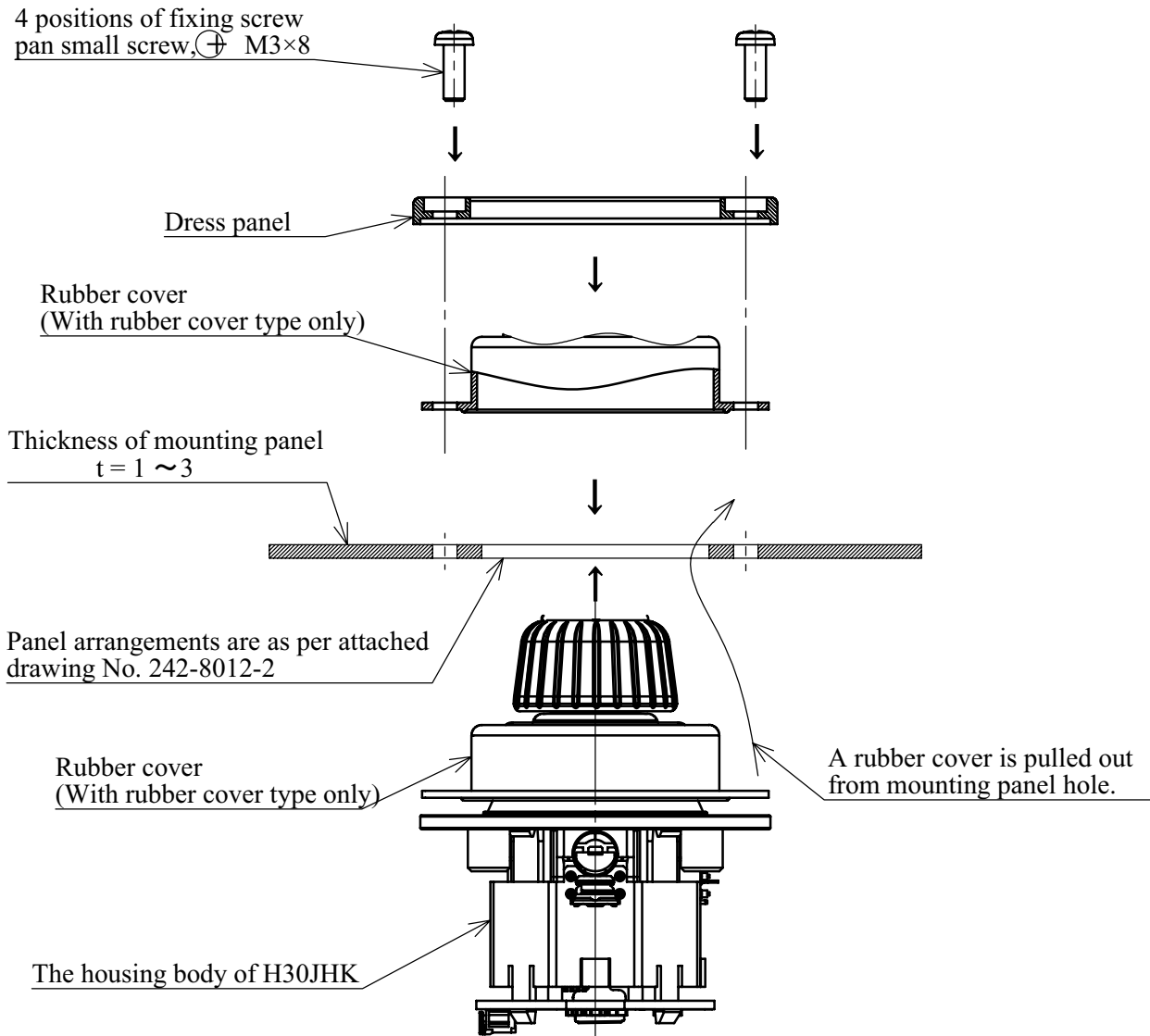
- Notes 1. The number of connector is shown on parenthesis.  
 2. The color of the leadwire on mating connector is shown in parenthesis.

SYM.	DATE	DESCRIPTION	APPO.	DESIGNED	DRAWN	CHECKED	APPROVED	TITLE
				RY	RY	M.Y	K.S	
				DATE 10, MAR. 2005		3RD ANGLE PROJECTION		MODEL NO. H30JHK-ZU-3(S,P,X)R3(G)
				<b>SAKAE TSUSHIN KOGYO CO., LTD.</b> KANAGAWA JAPAN				DWG. NO. 242-8012-1-3
				SCALE / NTS.		UNITS mm	SHEET 3 OF 5	



## HOW TO MOUNT JOYSTICK CONTROLLERS

1. Remove 4 positions of pan small screw, M3 × 8 on the dress panel and then, remove mounting plate.
2. As shown in the above illustration, mount them by 4 positions of pan small screw, M3×8 to the mounting panel of your device, according to the order of the housing of joystick, mounting panel rubber cover and dress panel.



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				SAKAE TSUSHIN KOGYO CO., LTD. KANAGAWA JAPAN				DWG. NO. 242-8012-3
				SCALE /		UNITS	mm	SHEET 5 OF 5