CURTISS-WRIGHT

Penny & Giles

# Hall-Effect Joystick and Grip

JC4000

- **Designed primarily for Aerial Work Platforms**
- **Single- or dual-axis**
- **Ergonomic grip**
- **Top switch and person-present lever options**
- **Hall-effect sensor technology**
- **Choice of voltage outputs**
- **Dual outputs on each axis**
- **Center-reference signal**
- **Rated for 6 million cycles**
- **Under- or above-panel mounting**
- **Enclosure sealing to IP67**
- **EMC performance to 100V/m**


The JC4000 joystick base and accompanying range of grips have been designed for use in Aerial Work Platform (AWP) applications, with options for single- or dual-axis operation making the product suitable for both scissor lifts and booms. Three, dual-axis gates are available – round, square or plus – while the ergonomically-designed grip offers the choice of one or two top switches, as well as a person-present lever, meaning the unit can be used across a wide variety of machines. These carefully-chosen configuration options offer an optimal combination of performance and cost.

Non-contacting, Hall-effect sensing technology ensures smooth operation and a long life – in excess of 6 million operating cycles. – while dual electrical outputs on each axis, plus a center-reference signal, enhance overall system safety. The range of the electrical outputs can be set to either 10-90% or 20-80% of a 5V regulated supply, with the polarity of each adjustable to suit the host electronics.

The joystick can be fitted to an enclosure in both under-panel and above-panel configurations, and provides sealing of the enclosure to IP67. In addition to a robust mechanical design that is resilient to high shaft load, shock and vibration, the operational integrity of the unit is assured in electrical fields of up to 100V/m.

Alternative grip options to those described above are available.

## SPECIFICATIONS

| | | |
|---|---|---|
| **ELECTRICAL** | | |
| SUPPLY VOLTAGE | 5Vdc ± 0.5Vdc | |
| OUTPUT VOLTAGE (FACTORY SET) | 10% to 90% or 20% to 80% of the supply voltage | |
| CENTER REFERENCE | 50% ±2% of supply voltage as supplied; ±3% of supply voltage at 6 million cycles | |
| OUTPUT SENSE | The dual outputs can be configured to have positive ramps, negative ramps or a combination of positive and negative ramps | |
| CURRENT CONSUMPTION | < 30mA | |
| CONNECTION | 12-way Molex connector (53047-1210) | |
| **MECHANICAL** | | |
| BREAKOUT FORCE | 0.7 Nm (nominal) | |
| OPERATING FORCE AT END OF TRAVEL | 1.35 Nm (nominal) | |
| MAXIMUM STATIC HORIZONTAL LOAD | 50 Nm | |
| MAXIMUM STATIC VERTICAL LOAD | 1,100 N | |
| MAXIMUM STATIC ROTATIONAL LOAD | 6 Nm | |
| MAXIMUM HORIZONTAL IMPACT LOAD | 5 Joules (on operating rod) | |
| MAXIMUM VERTICAL IMPACT LOAD | 15 Joules (on operating rod) | |
| MECHANICAL ANGLE | ±20° in X and Y axes | |
| GATE | Single (Y-axis), round, square or plus | |
| MECHANICAL LIFE | > 6 million cycles | |
| MTTFd | > 100 years | |
| WEIGHT | 310 g including grip | |
| **ENVIRONMENTAL** | | |
| OPERATING TEMPERATURE | -40°C to 80°C | |
| STORAGE TEMPERATURE | -40°C to 80°C | |
| ENVIRONMENTAL PROTECTION | IP66 or IP67 above panel dependent on grip, IP20 below the panel | |
| EMC IMMUNITY LEVEL | EN 61000-4-3: 2002 | 100V/m, 80% AM peak modulation, 80MHz-1GHz and 1.4GHz-2.1GHz |
| EMC EMISSIONS LEVEL | EN 61000-6-4: 2011 | 30MHz to 1GHz Class B limits |
| ESD IMMUNITY LEVEL | EN 61000-4-2, Level 2: 1995 | 8kV contact (including connector pins); 15kV air discharge |
| POWER FIELD IMMUNITY | EN 61000-4-8 | 30A/m; 50Hz & 60 Hz |
| VIBRATION (SINUSOIDAL) | EN 60068-2-6: 2008 | 3Gn, 10-200Hz, 1h per axis |
| VIBRATION (RANDOM) | EN 60068-2-64: 2008 | 3.6gn, 10-200Hz, 2h per axis |
| BUMP | EN 60068-2-29: 2008 | 40gn, ½ Sine 6ms, 1,350 bumps in each of 6 directions |
| SHOCK | EN 60068-2-27: 2008 | 50g, 6ms, Half Sine, 3 shocks in each of 6 directions |