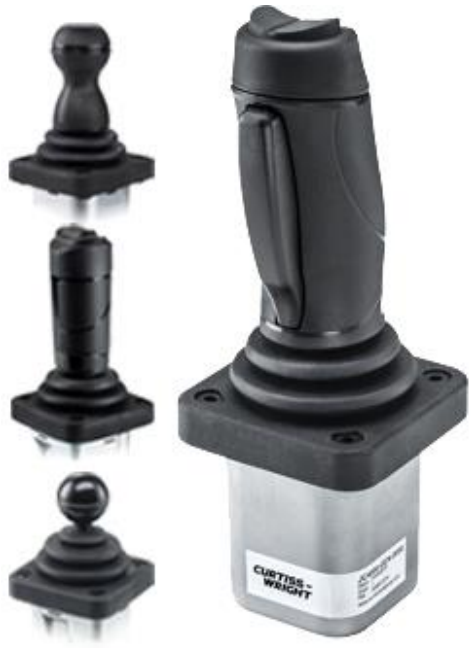
Penny & Giles

Hall-Effect Joystick and Grip

JC4000

- **Designed primarily for Aerial Work Platforms**
- **Single- or dual-axis**
- **Ergonomic grips**
- **Top switch and person-present lever options**
- **Rocker grip with proportional output and detent**
- **Hall-effect sensor technology**
- **Choice of voltage outputs**
- **Dual outputs on each axis including rocker grip**
- **Center-reference signal**
- **Rated for 6 million cycles**
- **Under- or above-panel mounting**
- **Enclosure sealing to IP67**
- **EMC performance to 100V/M**
- **Integrated Connector or Flying-Lead termination**



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%, 20-80% or 25-75% 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.

The joystick is also available either with an integrated connector or with 300mm long flying leads.

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) or 300mm long PTFE insulated 22 AWG cables	
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

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