Penny & Giles

Rugged Single-Axis Hall-effect Joystick

JC1500

- **Contactless – Hall-effect technology**
- **Single axis control with spring-to-center or friction-hold lever action**
- **Lock and detent features**
- **Choice of handles and grips**
- **5Vdc or 9-30Vdc supply**
- **Dual-channel output with optional ramp directions**
- **Analogue (Vdc) or Digital (PWM) outputs**
- **Extremely low signal noise – less than 1mV rms**
- **Operating temperature -40 to +85°C**
- **Environmental protection up to IP69K above the panel**
- **53mm under-panel depth**
- **Electrically interchangeable with potentiometers**

The JC1500 joystick utilizes contactless rotary position sensor technology combined with a rugged, low profile design.

The joystick provides reliable and accurate output signals - and includes a second output to enable error checking of the system integrity. The JC1500 is intended for use in the off-highway specialist vehicles market - particularly where reliability and strength are paramount e.g. Aerial Work Platforms.

The JC1500 joystick complements the existing range of JC150 potentiometer track joysticks and has the same panel mounting details – allowing replacement or upgrade with no panel modifications. If a JC1500 is used to replace a JC150 joystick then due consideration needs to be taken of the supply voltage

This JC1500 joystick is designed to share the same range of handles and grips as used in the JC150 and JC6000 models.

SUPPLY		
SUPPLY VOLTAGE	5Vdc ± 0.5Vdc or 9-30Vdc	
SUPPLY CURRENT	< 25mA (12.5mA per channel)	
OVER VOLTAGE	up to 40Vdc (-40° to +60°C)	
REVERSE POLARITY PROTECTED	Yes	
POWER-ON TIME	< 1s	
CONNECTIONS	220 mm long 4 core (24 AWG) Flying lead	
ANALOGUE OUTPUT		
OUTPUT VOLTAGE (5V)	10–90% ±1% of Vsupply	
OUTPUT VOLTAGE (9-30V)	0.5–4.5V ±3%	
OUTPUT NOISE	<1mV rms	
INPUT/OUTPUT DELAY	2.5ms	
DIGITAL (PWM) OUTPUT		
PWM FREQUENCY	244Hz ± 20% over temperature range	
PWM LEVEL (5V)	0-Vsupply ±1%	
PWM LEVEL (9-30V)	0-5V nominal ±3%	
PWM DUTY CYCLE	10-90% over measurement range	
PWM RISE/FALL TIME	<20µs typical	
GENERAL OUTPUT DATA		
RESOLUTION	12 Bit (0.025% of measurement range)	
NON-LINEARITY	< ±0.4%	
LOAD RESISTANCE	10kΩ min. to GND	
SHORT CIRCUIT PROTECTION	Output to GND and output to supply in 5V mode	
MECHANICAL		
ANGLE	±30° forward/reverse	
WEIGHT	530g without handle fitted	
LEVER OPERATING FORCE (spring return to center)	Breakout	0.75Nm or 1.50Nm
	Operating	1.25Nm or 1.85Nm (full deflection)
	Maximum allowable (Spring return and friction)	110Nm on axis of movement 70Nm across axis of movement 1,000N vertical load
LEVER OPERATING FORCE (Friction)	Breakout and Operating	1.50 Nm
ENVIRONMENTAL		
OPERATING TEMPERATURE	-40°C to 85°C	
STORAGE TEMPERATURE	-50°C to 85°C	
VIBRATION	Level ±3g, 10Hz to 200Hz (random) @ 3.6g(rms)	
LIFE	10 million operations (1 million for Friction and center and end locks versions)	
SHOCK	20g, 6mS, half sine profile	
EMC IMMUNITY LEVEL	100V/m, 30MHz to 1GHz, 1KHz 80% sine wave modulation, EN50082-2	
EMC EMISSIONS LEVEL	Complies with EN50081-2 (1993), 150kHz to 30MHz, level B	
PROTECTION	DIN 40050-9 IP69K (fitted with HKN handle) DIN 40050-9 IP69K (electronics) Mechanics not sealed below the panel	

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