

- Robust design for arduous applications
- Return-to-center
- Optional lever actuator profile
- Low under-panel depth of 23mm
- Hall-effect sensor technology
- Rated for 3 million cycles of life
- Dual-redundant electronic architecture
- Outputs with sense and voltage span options
- Dual supply to ensure a high level of signal integrity
- Designed to allow contamination (liquid or dust) to pass through the mechanism without causing any damage
- Electronics sealed to IP67



The JC050 is a roller for use in joystick grips and other in-cab human-machine interfaces. A robust, return-to-center mechanism provides movement over a range of  $\pm 37^\circ$ , with the thumbwheel having an option of a lever profile to ease operation. A compact mechanical design means the required under-panel space is just 23mm.

The roller utilizes non-contacting, Hall-effect sensing technology that eliminates contact wear and provides for long-life integrity of the output signal, giving rise to a minimum operating life of 3 million cycles.

Safety is enhanced via a fully dual-redundant electronic architecture made up of two power supplies and two sensing circuits, the outputs of which can be set to positive or negative ramps or a combination of both. Electronic robustness is assured with the enclosure sealing rated to both IP67.



## SPECIFICATIONS

### ELECTRICAL

SUPPLY VOLTAGE	5Vdc $\pm$ 0.5Vdc
OUTPUT VOLTAGE	10% to 90% or 20% to 80% of Supply Voltage
CENTER REFERENCE	48% to 52% of Supply Voltage
OUTPUT SENSE	The dual outputs can be configured to have positive ramps, a combination of positive and negative ramps or full voltage range over half travel from each sensor with constant output in the other half travel
CURRENT CONSUMPTION	< 19mA
CONNECTION	3, 4 or 6-way flying lead based on input/output requirements

### MECHANICAL

BREAKOUT FORCE	12.2 Nm
OPERATING FORCE AT END OF TRAVEL	24.4 Nm
MAXIMUM LOAD ON ROLLER	200N downward 0.4Nm torque
MECHANICAL ANGLE	$\pm$ 37°
MECHANICAL LIFE	3 million cycles
WEIGHT	14.6g

### ENVIRONMENTAL & LEGISLATIVE

OPERATING TEMPERATURE	-40°C to 85°C	
STORAGE TEMPERATURE	-40°C to 85°C	
ENVIRONMENTAL PROTECTION	The roller has a design where contamination (liquid or dust) can pass through the mechanism without causing any damage and an IP67 protection of the electronics	
EMC IMMUNITY LEVEL	ISO 11432-4: 2005	20-800MHz
	ISO 11452-2: 2004	100V/m, 400-2000MHz
EMC EMISSIONS LEVEL	ISO 14982: 2009	ECE Reg. 10.04 Annex 7
VIBRATION (RANDOM)	EN 60068-2-64: 2008	3.6gn, 10-200Hz, 2h per axis
BUMP	EN 60068-2-27: 2008	25gn, 10ms, 500 bumps in each of 6 directions
FREE-FALL DROP	EN 60068-2-32: 1993	1.0m at level C, 1.2m at level E
SHOCK	EN 60068-2-27: 2008	50g, 6ms, half sine, 3 shocks in each of 6 directions
MTTFd	>700 years	