

# JC 400

## MULTI-AXIS FINGERTIP JOYSTICK



JC400-B  
with ZA handle

JC400-A  
with ZCS handle

Developed for use in those applications where compact size and functionality are paramount, the JC400 offers proportional or digital fingertip control in up to three axes.

Designed for use with an electronic controller, the JC400 can be specified to generate three switched outputs per half axis, or analogue and switched reference signals proportional to the distance and direction over which the handle is moved. The analogue output can be configured to provide signals for fault detection circuits within the controller. A center tap on the analogue track provides an accurate voltage reference for the center position or a zero point for a bipolar supply voltage.

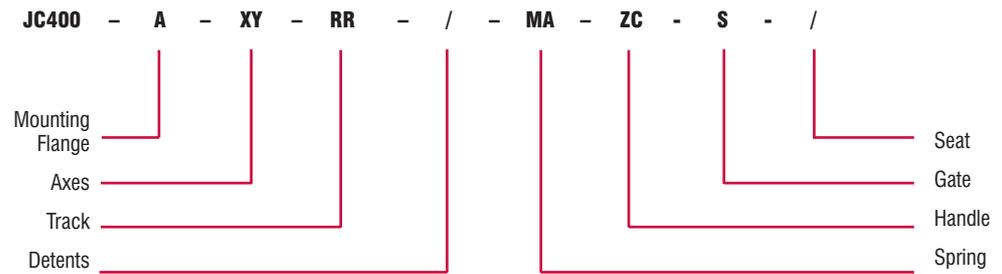
The JC400's range of ergonomic handles feature rotary operated potentiometers, or

switches, for a third axis of control, or Deadman's switches that can be used to improve the integrity of your control system.

Installation flexibility has been provided by using different forms of mounting flanges independent of the function of the joystick. The absence of micro switches and camshafts has eliminated the need to maintain the joystick throughout its operating life, which is in excess of five million cycles. Analogue track joysticks are supplied with side exit cables to minimize the required under panel depth whilst Digital track joysticks are fitted with standard electronic connectors to minimize installation time.

Typical applications include fork lift trucks, remote control systems, CCTV cameras and control of agricultural attachments.

### ORDER CODE



Mounting (flanges)	A	B	C	D
Shape	Round	Rectangular	Round	Rectangular
Inserts	None	None	Metric (M3 x 0.5p)	Metric (M3 x 0.5p)

Axes	X	XY
No of Axes	1	2

Tracks	N	R	Q	D
Track Resistance	4kΩ	5kΩ	8kΩ	Digital
Output Voltage Range	0% to 100% Vs	10% to 90% Vs	25% to 75% Vs	3 switches either side of center
Directional Switch Angle	± 5°	± 5°	± 5°	± 5°

Detents	D
	Only available with Digital Tracks

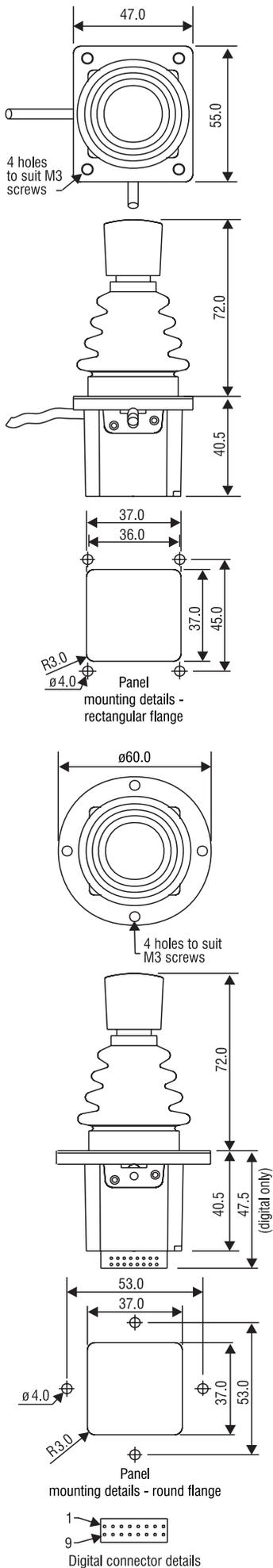
Center Return Spring	Analogue			Digital		
	LA	MA	HA	LD	MD	HD
Breakout Force	2.0N	2.3N	3.0N	3.5N	4.0N	5.5N
Operating Force	6.0N	6.0N	7.0N	9.5N	11.0N	13.5N

Handles	ZC fitted as standard JC300 type handles are available, i.e. ZA, ZAS, ZCS, KW, and KWS
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Gate	S	R	D
	Square	Round	Diamond

Seat	P	N
	Preferred	Non-preferred

## Specifications



All dimensions in mm

### Mechanical

Breakout Force	Analogue	2.0N, 2.3N, 3.0N	50mm above flange
	Digital	3.5N, 4.0N, 5.5N	50mm above flange
Operating Force	Analogue	6.0N, 6.0N, 7.0N	Full deflection, 50mm above flange
	Digital	9.5N, 11.0N, 13.5N	
Maximum Applied Force		200N	Full deflection, 50mm above flange
Mechanical Angle of Movement		±22°	
Electrical Angle of Movement		±20°	
Expected Life (Operations)		>5 million	
Mass		100g	No handle fitted

### Environmental

Operating Temperature Range	-40°C to +70°C	
Storage Temperature Range	-50°C to +85°C	
Environmental Sealing Above the Flange	IP65	BSEN60529

### Electrical General

Maximum Load Current	Potentiometer wiper - See Design Note in rear of Data Sheet Directional switches - 200mA Resistive
Maximum Power dissipation	0.25W at 25°C
Mating Connector for Digital output	Dupont Dubox Connector 65239-008
Mating Connector pins	Dupont Dubox Pins 76357-301

### Analogue Track

Total track Resistance	4kΩ, 5kΩ, 8kΩ	Tolerance ±20%
Output Voltage Range	0% to 100%Vs or 10% to 90%Vs	Tolerance ±2%
	or 25% to 75%Vs	
Center Tap Voltage (1MΩ Load)	50%Vs	Tolerance ±2%
Center Tap Angle	2.5° either side of center	Tolerance ±1%

### Digital Track

Number of switch positions	3 either side of center
Number of detents	3 either side of center
Switch/Detent Angles	±6.6°, ±13.3°, ±20°
Maximum Supply Voltage (Vs)	30Vdc

### Directional Switch

Directional or Center Off Switch	Standard	
Switch Operating Angle	5° either side of center	Tolerance ±1°
Maximum Supply Voltage (Vs)	30Vdc	

### Termination Details

Potentiometric Option - Cable	Wire Color	Digital Option - Connector	Pin No.
Y-axis positive supply voltage	Green	Y-axis switch 1	3
Y-axis Center tap	Brown	Y-axis switch 2	14
Y-axis negative or zero supply voltage	White	Y-axis switch 3	16
Y-axis output voltage signal	Black		
N/O signal handle forward (+Y)	Pink/Black	N/O signal handle forward (+Y)	1
N/O signal handle back (-Y)	Green/Red	N/O signal handle back (-Y)	9
N/C signal handle center (Y)	Red/Brown		
Common terminal for Y-axis directional switches	Yellow/Green	Common terminal for all Y-axis switches	5
X-axis positive supply voltage	Orange	X-axis switch 1	4
X-axis Center tap	Gray	X-axis switch 2	7
X-axis negative or zero supply voltage	Red	X-axis switch 3	10
X-axis output voltage signal	Yellow		
N/O signal handle forward (+X)	Orange/Black	N/O signal handle forward (+X)	2
N/O signal handle back (-X)	Red/Black	N/O signal handle back (-X)	6
N/C signal handle center (X)	Orange/Red		
Common terminal for X-axis directional switches	Purple/Red	Common terminal for all X-axis switches	5