

**Penny + Giles** announces the release of a new single axis joystick controller design that enables use in heavy duty applications without compromising on smooth proportional control. The **JC1500** joystick utilises 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. The new joystick is designed to share the same range of handles and grips used in the JC150 and JC6000 models.



#### Key Features

- 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
- Analog (Vdc) or Digital (PWM) outputs
- Extremely low signal noise – less than 1mV<sub>rms</sub>
- Operating temperature -40 to +85°C
- Environmental protection to IP69K above the panel
- 53mm under-panel depth
- Electrically interchangeable with potentiometers

# JC1500 SINGLE AXIS CONTACTLESS JOYSTICK

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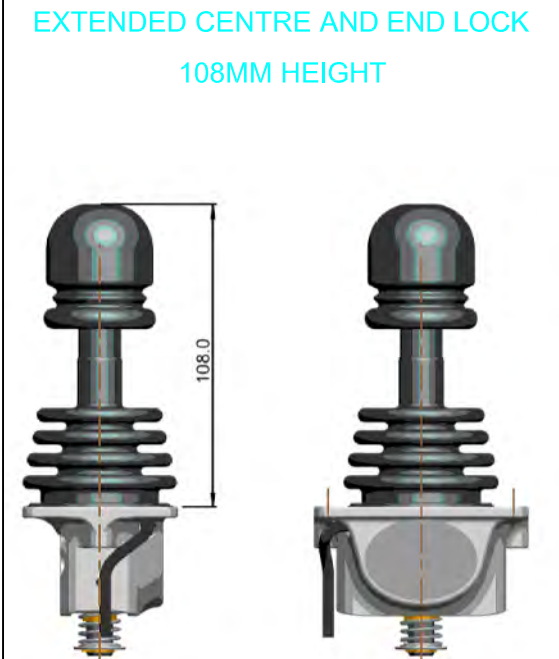
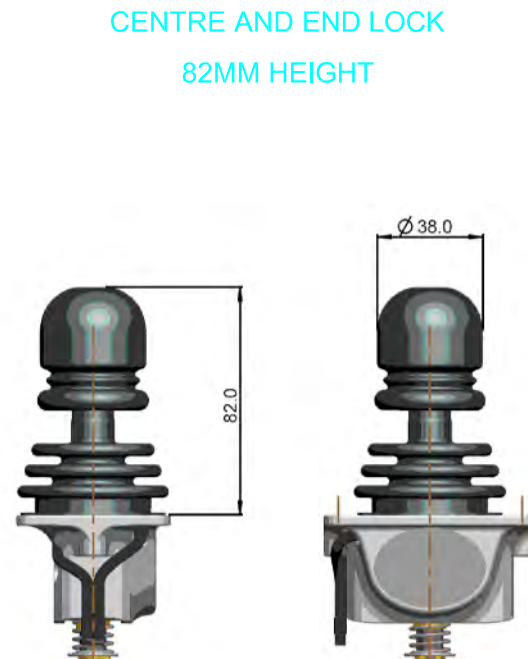
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RANGE		AXIS		OUTPUT		OUTPUT SENSE		OPERATION		SPRING		FEATURES		DETENT		HANDLE		GAITER OPTION		INTERFACE												
JC1500		Y		*		**		*		*		**		***		***		***		***												
				A	P	PP	PO	PN	NP	OO	S	F	L	M	N	NL	CL	EL	D00	D01	NH	NHF	HKN	HB	R	S	STN	STA				
ELECTRICAL DATA														EC			FL		RL						A		MG		CL			
Insulation Resistance @50V DC; Between isolated pins				50 MΩ										FC			RC															
Maximum Current consumption				12.5mA per Channel																												
Supply Voltage				5Vdc +/-0.5Vdc Regulated and 9V to 30Vdc Unregulated																												
Supply Current				≤25mA (12.5mA per Channel)																												
Supply reverse polarity protection				Yes																												
Short circuit protection output to GND				Yes																												
Short circuit protection output to supply				In 5V regulated mode only																												
Over voltage protection				up to 40V (-40 to +60°C)																												
Power on settlement				<1s																												
Resolution				12 Bit (0.025% of measurement range)																												
Non-linearity				<+/-0.4%																												
Temperature coefficient				<+/-30ppm/°C in 5V regulated supply mode <+/-90ppm/°C in 9-30V supply mode																												
OUTPUT (A or P)																																
Options				Analogue or Digital PWM																												
ANALOGUE OUTPUT OPTION (A)																																
Voltage output range (9-30V Supply)				Absolute voltage from 0.5V to 4.5V over measurement range (+/-3%)																												
Voltage output range (5V Supply)				Ratiometric output voltage from 10% to 90% (+/-1%) 10% to 90% over measurement range																												
Monotonic range				0.25V (5%) and 4.75 (95%) nominal																												
Load Resistance				10 Kohms minimum (resistive to ground)																												
Output noise				≤1mVrms																												
Input/Output delay				2.5ms																												
DIGITAL PWM OUTPUT OPTION (P)																																
PWM frequency				244Hz +/-20% over temperature range																												
PWM levels (9-30V supply)				0V and 5V nominal (+/-3%)																												
PWM levels (5V supply)				0v and Vsupply (+/-1%)																												
Duty cycle				10% to 90% over measurement range																												
Monotonic range				5% and 95% nominal																												
Load Resistance				10 Kohms minimum (resistive to ground)																												
Rise/Fall time				<20 μs typical																												







ENVIRONMENTAL DATA	
CRITERIA	TESTING STANDARD
Sealing (above mounting panel)	BS-EN 60529 rating IP69K
Sealing (below mounting panel)	BS-EN 60529 rating IP40
Sealing (electronics)	BS-EN 60529 rating IP69K
Operating Temperature range	BS EN 60068-2-14 (-40°C to +85°C)
Storage Temperature range	BS EN 60068-2-14 (-50°C to +85°C)
Temperature \ Humidity	BS EN 60068-2-38
Vibration (Random)	BS EN 60068-2-6
Vibration (Sinusoidal)	BS EN 60068-2-64
Vibration (Shock)	BS EN 60068-2-29
Vibration (Bump)	BS EN 60068-2-27
Salt Spray	BS EN 60068-2-11
Drop Test	BS EN 60068-2-31
Radiated Susceptibility	BS EN 61000-4-3

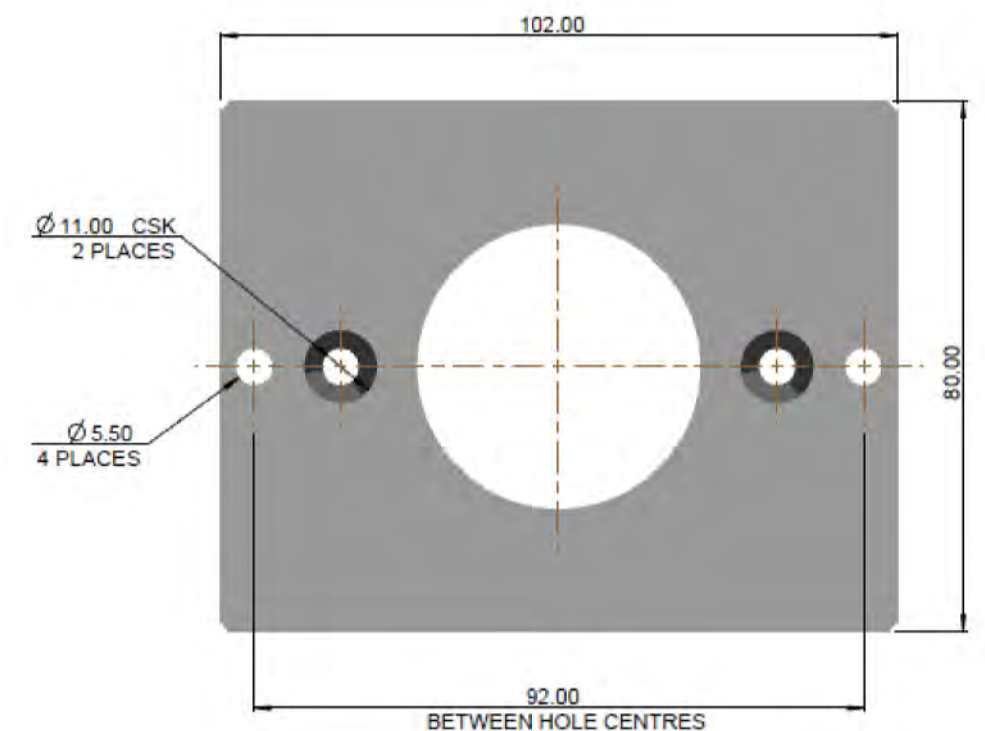
## STA INTERFACE OPTION


JC1500 Adaptor plate P48692, This is needed when an AMF handle is fitted.

Plate thickness 2.90/3.35mm.

Finished in **black eggshell epoxy** (all surfaces).

Note: Joystick assembly is mounted from the top of the panel when adapter plate is fitted



A3	<b><i>Penny + Giles</i></b>	<b>METRIC</b>	ALL SCREW THREADS TO BS 3643 PT. 2 EXTERNAL CLASS: 6g INTERNAL CLASS: 6H TOLERANCES IN LINE WITH PENNY & GILES STANDARDS 56-301		RoHS COMPLIANCE			TITLE			SPECIFICATION NUMBER  <b>JC1500-GEN-****</b>
ACAD	©COPYRIGHT RESERVED.	<b>NOT TO SCALE: DO NOT SCALE. IF IN DOUBT, ASK.</b>			YES		NO	SINGLE AXIS JOYSTICK			
SHT 3 OF 3 SHTS	THIS DOCUMENT CONTAINS CONFIDENTIAL AND/OR PROPRIETARY INFORMATION AND MAY NOT BE REPRODUCED IN ANY FORM WHATSOEVER, NOR MAY ITS CONTENTS BE DIVULGED TO THIRD PARTIES WITHOUT THE WRITTEN PERMISSION OF THE OWNER. ALL RIGHTS RESERVED.	 THIRD ANGLE PROJECTION TO BS 8888	LINEAR (MACHINING) 0. mm +/- 0.5mm 0.0 mm +/- 0.2mm 0.00 mm +/- 0.1mm 0.000 mm +/- 0.01mm	ANGULAR +/-1°  UNLESS OTHERWISE STATED	C	10/04/10	JD	ENG' APPROVAL	QUAL' APPROVAL	NEW DRAWING	
		CHANGES TO THIS BORDER MUST BE ACTIONED ON SK309927			ISSUE	DATE	DRAWN			CHANGES	