

# CJ series

## Ergonomic multifunction joysticks

Distinctive features and specifications



- Ergonomic and versatile design
- 1 and 2 axis configurations
- Sealed up to IP68
- Redundant outputs available
- Available with CANbus and USB outputs
- Industry common mounting cutout and hole pattern

### MECHANICAL (FOR X AND Y AXIS)

- Break Out Force: 5.6N (1.26lbf)
- Operating Force: 7.6N (1.70lbf)
- Maximum Applied Force: 649.4N (146lbf)
- Mechanical Angle of Movement: 40° (±20°)
- Expected Life: 10 million cycles
- Material: Glass reinforced nylon
- Lever Action (Centering): Spring centering

### ENVIRONMENTAL

- Operating Temperature: -40°C to 70°C (-40°F to 158°F)
- Storage Temperature: -40°C to 70°C (-40°F to 158°F)
- Sealing (IP): Up to IP68
- EMC Immunity Level (V/M): IEC 61000-4-3:2006
- EMC Emissions Level: IEC 61000-4-8:2009
- ESD: IEC 61000-4-2:2008

### ELECTRICAL SENSOR

- Resolution: 1.22mV
- Supply Voltage Range: 5.00V±0.01V
- Reverse Polarity Max: -10V
- Overvoltage Max: 20V
- Output Impedance: 2Ω
- Return to Center Voltage Tolerance: ±200mV initial
- Supply Current: 13mA per sensor

### STANDARD PUSHBUTTON SWITCH CHARACTERISTICS/RATINGS

- Max Current / Voltage Rating with Resistive Load: 400mA 32VAC - 100mA 50VDC - 125mA 125VAC
- Low Level: 10mA @ 30mV (depending on the chosen switch)
- Electrical Life: 1 million cycles 5A @ 28 VDC resistive snap-action (depending on the chosen switch)
- Mechanical Life: 1 million cycles
- Environmental Seal: IP67
- Action: Momentary, pushbutton
- Operating Force: 7N±3N (1.57lbf±0.67lbf)
- Total Travel: 1.9mm (0.07in)±0.3mm (0.01in)

### CAN OUTPUT VERSION

- Supply Voltage Range (VDC): 6V to 35V
- CAN Versions: J1939, CANopen

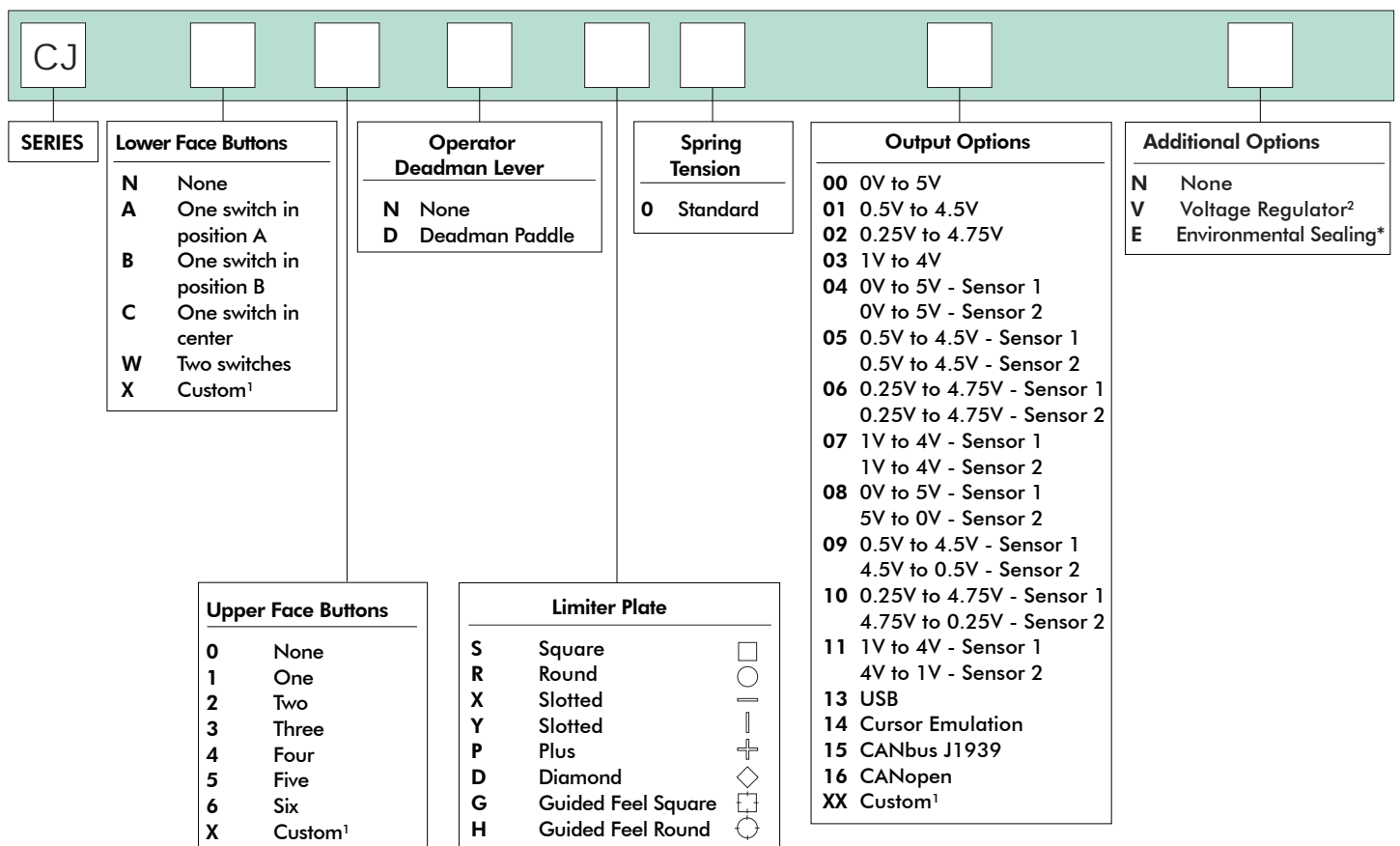
### NOTES:

- All values are nominal.
- Exact specifications may be subject to configuration.
- Contact Technical Support for the performance of your specific configuration.

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**NOTES:**

1. Contact Technical Support for custom options.
2. Not available on dual output.



\*Environmental sealing level available up to IP68. Dependent upon handle configuration.



Mounting accessories. Standard hardware includes: 4 Phil. screws (6-32x7/8).

#### LOWER FACE BUTTONS



N



A



B



C

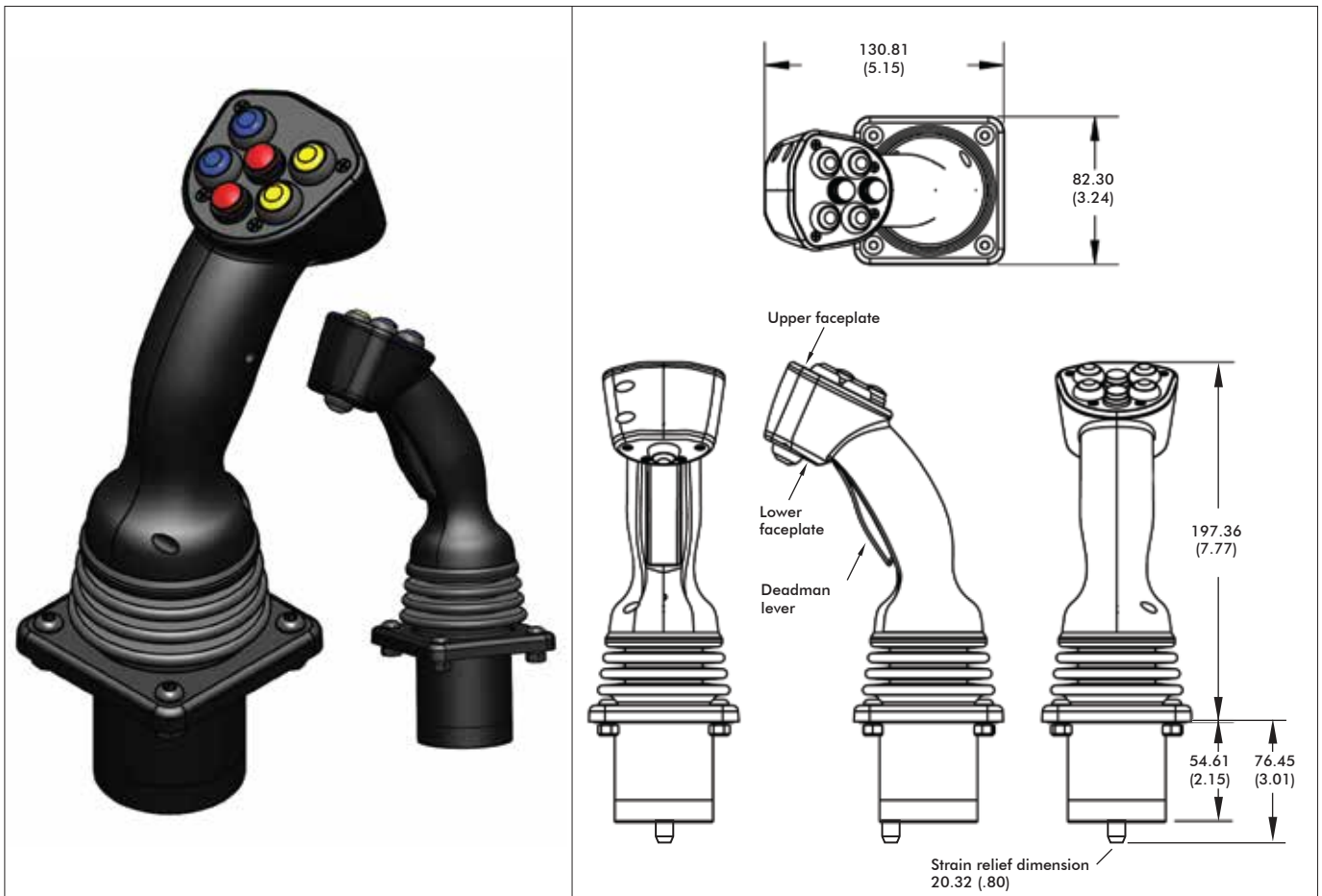


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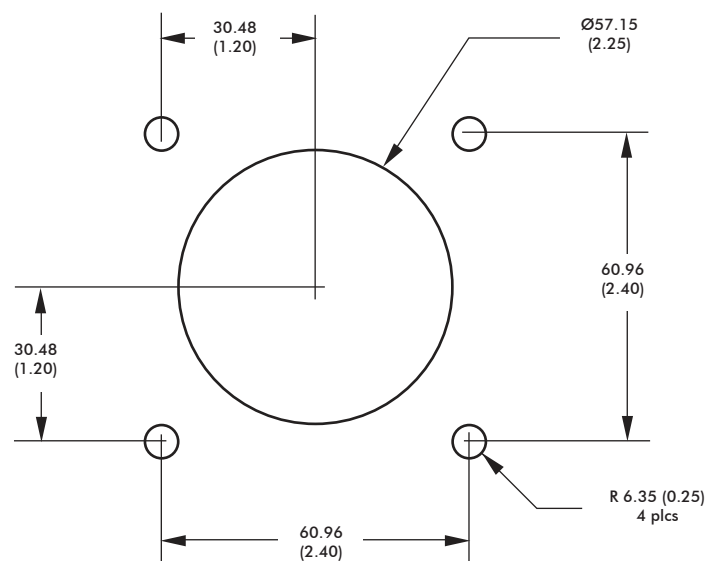
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### STANDARD PANEL CUTOUT DIMENSIONS



NOTE:

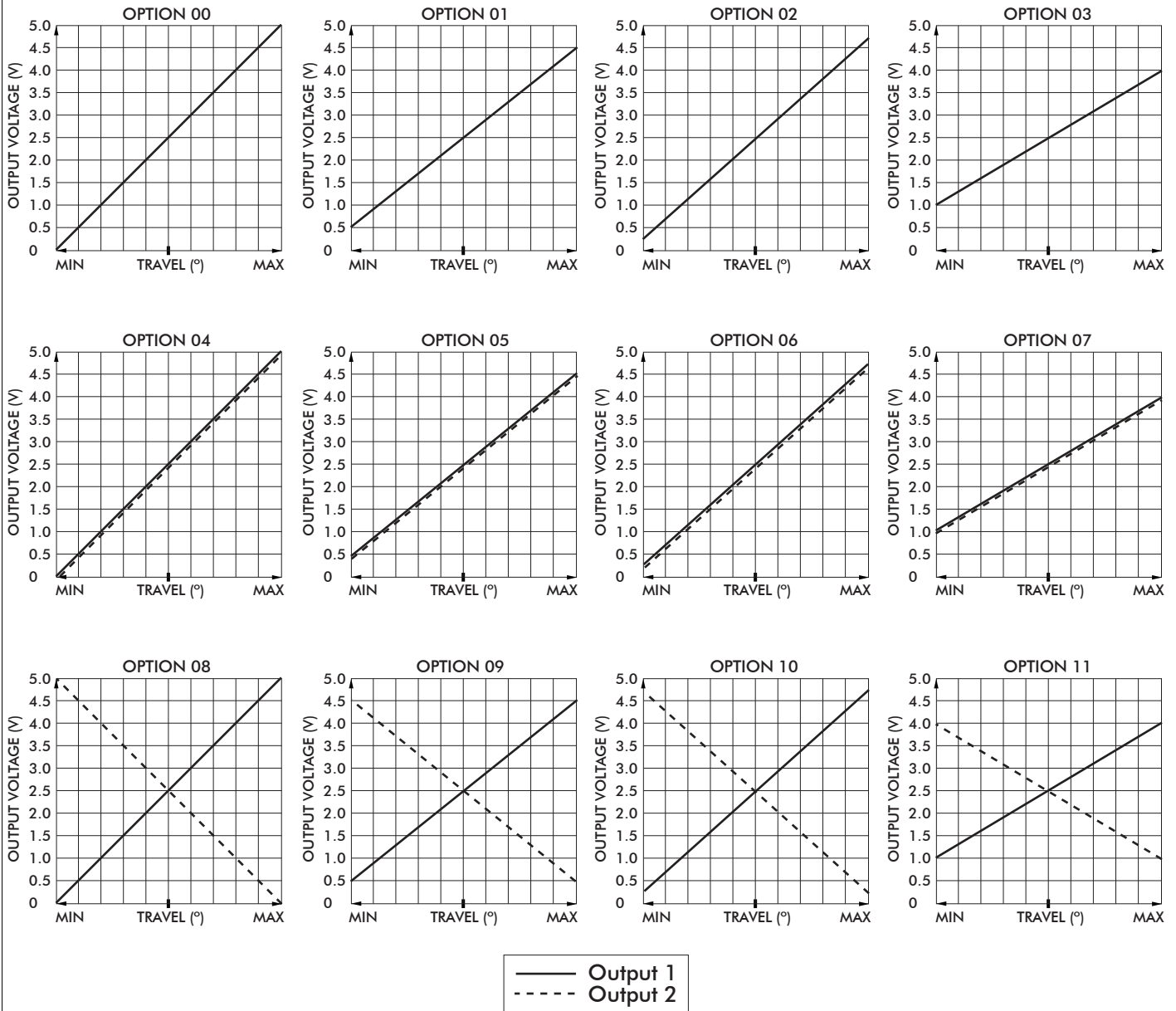
Dimensions are in mm/(in).

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#### VOLTAGE OUTPUT OPTIONS



Note: The company reserves the right to change specifications without notice.

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### USB

#### USB

Featuring USB 1.1 HID compliant interface, APEM's USB joysticks are recognized as standard HID "game controller" devices. Adhering to the HID specification, APEM's USB joysticks are plug-and-play with most versions of Windows. Joystick button and axis assignments are dependent upon the controlled application.

#### FEATURES

- USB 1.1 HID compliant "game controller" device
- Easy to install and operate
- Functions determined by controlled application

#### SUPPLIED WIRING

USB: USB Male Type A Connector with overmolded cable

#### CURSOR EMULATION

The Cursor Emulation option converts multi-axis joystick output into a mouse, trackball, or cursor control device. The joystick's internal microprocessor converts absolute axis position into a cursor velocity, which is translated as a relative trackball or mouse position.

#### APPLICATIONS

The Cursor Emulation option is ideal for vehicle applications subjected to dirt and high vibration which makes operating a traditional cursor control device difficult. The Cursor Emulation option is widely used in shipboard and military applications.

#### FEATURES

- HID compliant "pointing device"
- Plug-and-play with USB option

#### SUPPLIED WIRING

USB: USB Male Type A Connector with overmolded cable

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#### CANBUS

##### CANbus J1939

APEM's CJ CANbus joysticks conform to the SAE J1939 serial bus specification used for communications between electronic control units and vehicle components. The CJ CANbus option provides I/O extension for up to 24 digital and 11 analog inputs.

##### ELECTRICAL SPECIFICATIONS

- Supply Voltage: 6VDC to 35 VDC
- Supply Current: 15mA min, +5mA per LED, +10mA per axis

##### WIRING SPECIFICATION

- Red Wire: Supply Power
- Black Wire: Ground
- Green Wire: CAN high data
- White Wire: CAN low data
- Blue Wire: Identifier Select LSB
- Orange Wire: Identifier Select MSB

##### ENVIRONMENTAL

- Operating temperature: -25°C to +70°C (-13°F to +158°F)
- Storage temperature: -40°C to +70°C (-40°F to +158°F)

##### CONNECTOR OPTIONS:

- Cable assembly with Deutsch DT04 style plugs

##### CANbus CONFIGURATION

- Contact Technical Support for assistance

##### CANopen

- Contact Technical Support for assistance with CANopen configuration.

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### ADDITIONAL OUTPUT OPTIONS

#### VOLTAGE REGULATOR

The Voltage Regulator is a multi-wired analog option used to mate to a variety of industrial control voltages. The Voltage Regulator may be used when the supply or output voltage is greater than 5V or when bipolar output is required.

User Specified Output Voltage:

- 0-5VDC
- 0-10VDC
- $\pm 5$ VDC
- $\pm 10$ VDC

#### ELECTRICAL SPECIFICATIONS

- Supply Voltage: (Output Voltage + 1VDC) to 30VDC
- Supply Current: 90mA max

