VCSO
COMPACT / RUGGED
JOYSTICK CONTROLLER

Construction:
The TYPE VCSO Joystick Controller is rugged, compact and offers excellent application versatility. VCSO Joysticks are utilized where precise proportional and step control of A/C or D/C drives and Electro-Hydraulics is desired.

The all plastic Zytel housing and specially treated rugged metal components make this Joystick ideal for use in corrosive environments.

The VCSO Joystick is constructed with nickel chromium gimbal yokes, nylon guide blocks, 5/16” hardened operating shaft and bronze gate with shaft roller as a stop. The VCSO also features a new positive detent system and a field removable off point contact module.

Application:
These devices are commonly utilized to control Material Handling and Processing machinery used in Metals, Mining, Marine, Construction and Forestry Industries where durability and resistance to corrosion is paramount.

Features:
- Rugged construction
- Compact design (6 contacts & potentiometer in each axis in a 4 ¾ square area).
- Corrosion resistant components
- Single and dual axis operation
- 6 Double Pole contact blocks each axis (field replaceable)
- 10 million plus operations
- Long life, compression type return spring system

Options:
- Multiple mounting systems
- Friction held handle
- Standard and custom switching gates
- Up to 6-0-6 detented steps
- Large variety of optional handle configurations including deadman and mechanical interlock options.
- Large selection of proportional outputs including high life conductive plastic potentiometers, PWM, encoders and Can-bus

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**VCSO ORDERING INFORMATION**

**Drive Arrangement:** Single axis and double axis

**Basic Assembly:** 4.3” [110mm] shaft length x 0.32 [8mm] shaft diameter, boot and 3.78” [96mm] mounting plate supplied standard

**Handle:** 2 piece standard

**Handle Action:** Spring Return

**Output:** Proportional, discrete

**Output Devices:** Potentiometer, encoder, PWM, CAN, double pole contact block with saddle clamps

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### VCSO Technical Data

#### Mechanical:
- **Mechanical Life:** 10 million cycles
- **Gear Ratio:** 3.78:1
- **Detented Positions:** 0° neutral and 1-0-1 – 6-0-6 steps
- **Handle Travel:** ±37° for proportional
- **Potentiometer Rotation:** ±140°

#### Environmental:
- **Operating Temperature:** -25 to +70° C
- **Storage temperature:** -40 to +70° C
- **Protection above the panel:** IP55

#### Options:
- **Handle:** See handle section for a selection of handle options
- **Shaft Length:** 3.3” [85mm], 5.5” [140mm] and 7.13” [180mm]
- **Handle Action:** Friction Brake
- **Mounting:** See mounting section for a selection of mounting options
- **Gates:** Variety of standard and special handle restricting gates available.
- **Special Pots:** Please consult factory with special potentiometer requirements.

Please consult factory for other available options not listed.

#### Electrical:
- **Contacts:**
  - Double pole contact block with M3.5 x 0.5 screw with saddle clamp (#12 AWG max.).
  - 6 double pole contact blocks (12 circuits) maximum each axis.
  - 3 double pole contact blocks (6 circuits) maximum with potentiometer.
- **AC Current:** 10A Resistive, 4 A Inductive @ 250V
- **DC Current Resistive:** 4A at 12V, 1.7A at 24-42V, 0.3A at 115-230V.
- **DC Current Inductive:** 0.8A at 24-42V, 0.2A at 115-230V
- **Potentiometers:**
  - Conductive Plastic, 0.5 watt 5K 3-wire or 10K 4-wire center tap, 5 million revolutions
  - Connections: 20 AWG Hi-Temp, XLPVC, UL1430 wire with Molex connector (03-06-2042)
- **Electronics:**
  - PWM Amplifiers, Pot Amplifiers, Motor Control, CAN Bus, Encoder
  - Connections: Varies with product – see individual output device pages for connection details.
VCSO WITH CONTACTS OVERALL DIMENSIONS

VCSOE SINGLE AXIS (E)

A

C

D

B

OR

3.8 [96] SQ.

VCSOV DOUBLE AXIS (V)

A

C

D

B

3.8 [96] SQ.

4.3 [110]

2.5 [64]

37°

37°

37°

37°

A-B A-B

A-B C-D A-B

0.5 [12]

0.5 [12]

0.5 [12]

0.5 [12]

1.6 [40]

1 contact block

1.6 [40]

1 contact block

1.6 [40]

1 contact block

1.6 [40]

1 contact block

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VCSO WITH POTENTIOMETERS DIMENSIONS

STANDARD POTENTIOMETER BOARD & PEC POTENTIOMETER

VOLTAGE BOARD & PEC POTENTIOMETER

POTENTIOMETER PD550/PW55

CURRENT BOARD & CLAROSTAT CONDUCTIVE PLASTIC POTENTIOMETER
VCSO OVERALL HANDLE OPTIONS DIMENSIONS

2 PIECE, OPTIONAL
VCS2 [2.8] 72 X [2.8] 72 PLATE, SMALL BOOT & 4.3 [110] SHAFT

2 PIECE, OPTIONAL
VCS2 [2.8] 72 X [2.8] 72 PLATE, SMALL BOOT & 3.3 [85] SHAFT

2 PIECE, OPTIONAL
VCS2 [2.8] 72 X [2.8] 72 PLATE, SMALL BOOT & 5.5 [141] SHAFT

MI, OPTIONAL
VCS2 [2.8] 72 X [2.8] 72 PLATE, SMALL BOOT & 4.3 [110] SHAFT

RHN-01
3.3 [85] SHAFT

BH
3.3 [85] SHAFT

RHS-01
3.3 [85] SHAFT

MG27
4.3 [110] SHAFT

(Consult factory for other handle options)
See handle sections for handle degree protection.
VCSO MOUNTING DIMENSIONS

MOUNTING STYLE 1:
Standard 5 hole with 1.890Ø [48.0] center hole

MOUNTING STYLE 2:
Optional 5 hole with Ø1.890 [48.0] center hole and 2.84 [72] X 2.84 [72] nameplate

MOUNTING STYLE 3:
5 hole with 2.638Ø [67.0] center hole

MOUNTING STYLE 4:
5 hole with 2.250Ø [57.1] center hole

BH: remove lever before mounting

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