VNSO
MILL DUTY
JOYSTICK CONTROLLER

Application:
The type **VNSO** Joystick controllers are characterized by their unmatched versatility and rugged construction. They are actively providing directional and speed control of AC/DC Drives, Electro-Hydraulics, or any other devices requiring a manually selectable proportional output. Some applications include: Cranes, Lifts, Hoists, Mobile Transporters, Mining Vehicles, Excavating and Logging Equipment.

Features:
- **Rugged Construction:** Nickel Chromium gimbal mechanism, case hardened bearings and operating shaft.
- **Mechanical Life:** 20 million cycles.
- **Design Flexibility:** Contact and potentiometer drive locations can be selected to accommodate available panel space. Tandem drive arrangement available for mounting at end or at base of controller.
- **Multi-Axis Control:** 1 and 2 axis controllers for separate or simultaneous operation. Both standard and custom switching patterns available.
- **Handles:** Variety of handle styles and handle operated deadman functions.
- **Precise Step Control:** Up to 7-0-7 individually detented steps in each axis.
- **Contacts:** (10) Snap in 16A 240VAC double pole field replaceable contacts. Type V3 form C, DC, and gold low voltage type contacts available upon request.
- **Potentiometers:** 1 watt 10 million revolution conductive plastic potentiometers furnished standard, other types available upon request.
- **Electronics:**
  ESS-420: 4-20 milli-amp 2 wire transmitter.
  ESS0 10-0-10: 0-10 and ±10V amplifiers.
  OGR8G-M1: 8 Bit gray code Encoder.
  PFC and PFC/CR Proportional Feathering Control electronic amplifiers for operation of Electro-Hydraulic Proportional Valves.
- **Enclosures:** Variety of standard and custom steel and

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VNSO ORDERING INFORMATION

Basic Assembly: 5 1/2" long shaft, 2-piece handle, boot and plastic mounting plate supplied standard.
Contact Drive Arrangements: See VNSO dimensions for selecting contact drive mounting arrangements.
Handle: Reference handle section for handle options and custom grips.
Standard Shaft Lengths: 4 $^{1}/_{8,}$ 5 ½, or 7 $^{1}/_{8.}$ (Measured from mounting surface to top of handle.)
Contacts: Each contact block supplied with 2 SPST contacts.

Output Devices:

Potentiometers: 1 watt conductive plastic 10 million revolutions furnished standard. Specify resistance and type required. (Consult factory for custom requirements).

Electronics: See Proportional Feathering Control (P.F.C.) and PFC/CR electronics for ordering information.

Encoder: See OGR8G-M1 8 Bit gray code absolut encoder information sheet.

Transformer: See DGO 1, 2 & 3 Rotary Inductive Differential Transformer information sheet.

VNSO TECHNICAL DATA

Mechanical:

Operating Temperature:
-25°-+70°C

Detented Positions:
Up to 7-0-7 Steps

Gear Ratio: 3.5:1
Handle deflection ±36°, cams and potentiometers ±126°.
(Other angles available consult factory)

Mechanical Life:
20 million plus operations.

CONSULT FACTORY FOR: LOW VOLTAGE GOLD, V3 FORM C, AND DC RATED CONTACTS)

Electrical:

Contacts:
Up to 10 double pole snap in contact blocks.
i.e. 20 contacts for each axis.
(Consult factory if additional contacts required).

Rating AC: a) AC continuous 16 amps @ 240V
b) AC resistive 8 amps @ 240V
c) AC inductive 6 amps @ 240V
d) 1 H.P. 120VAC 1 phase
e) 2 H.P. 240VAC 1 phase

Max. Switching Capacity:
Making - 100 amps
Breaking - (0.7PF) 80 amps 240V

Electro-Mechanical Life: Breaking AC current
a) Resistive: 1 million operations @ 8 amps 240V
10 million operations @ 2 amps 240V
b) Inductive: 1 million operations @ 6 amps 240V
10 million operations @ 2 amps 240V

Approvals: CSA file number: 15040
UL Recognized file number: E106738 (M)

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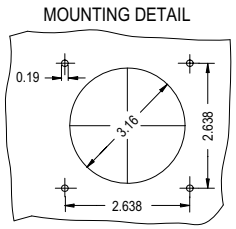
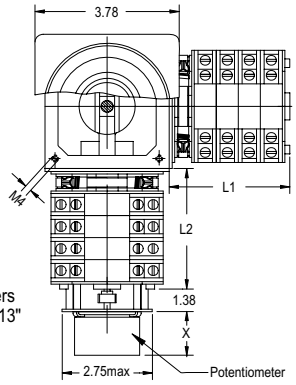
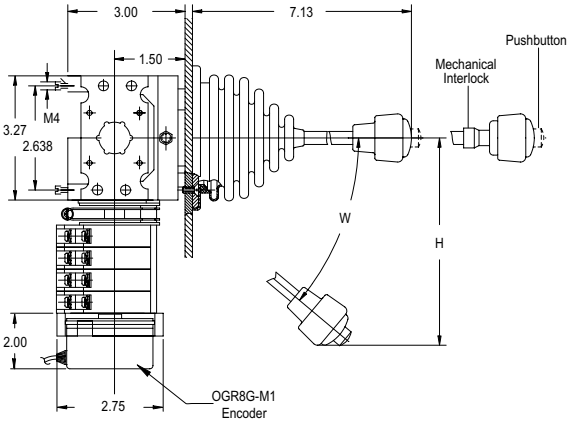
VNSO DIMENSIONS



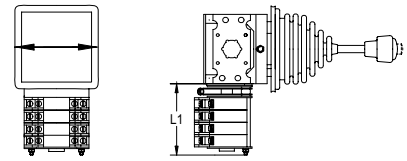


*For PD550 Flat Potentiometers
Total Dimensions including x=1.13"
Potentiometer Rotation
Standard 126°-0°-126°

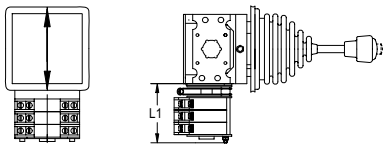


Drive Arrangement Selection Table

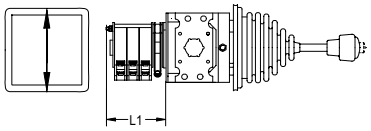
VNSO-E



VNSO-G



VNSO-A



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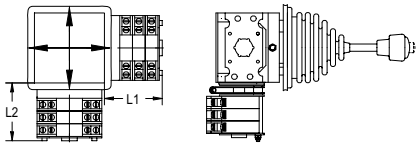

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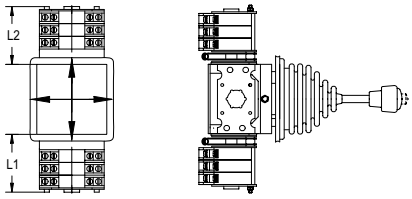
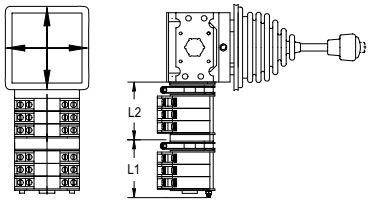


VNSO-H



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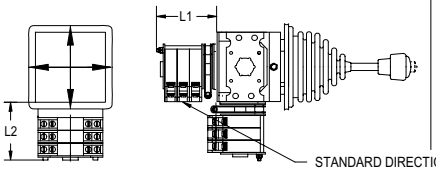

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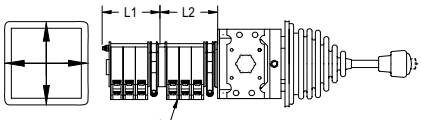

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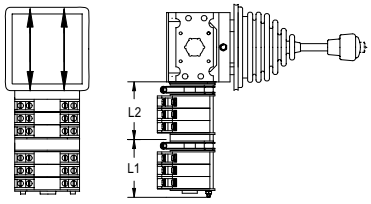
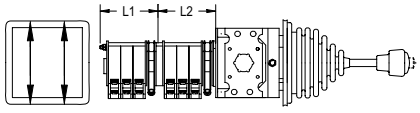


VNSO-GGA



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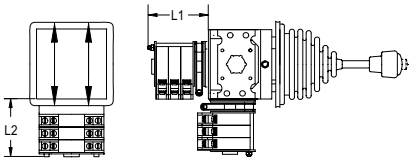

L1 or L2 Dimensions	1.38	1.97	2.56	3.16	3.75	4.34	4.94	5.53	6.12	6.69
Double Pole Contact Blocks	1	2	3	4	5	6	7	8	9	10

Pos.	W	H
1-0-1	13°	2.50
2-0-2	21°	3.50
3-0-3	30°	4.37
4-0-4	29°	4.25
5-0-5	35°	4.81
6-0-6	36°	5.00
7-0-7	38°	5.12

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