

VNSO MULTI-AXIS JOYSTICK



With unmatched versatility and rugged construction, the VNSO joystick has set the standard in high-duty crane and industrial applications.

STANDARD FEATURES

- Rugged construction with nickel chromium gimbal mechanism, case hardened bearings and operating shaft
- Supports horizontal, vertical and tandem mounting of contact drives to suit the available installation space
- Stepless or stepped control with up to 7-0-7 detents
- Environmentally sealed panel mounting



HEAVY DUTY
& RUGGED



HIGHLY
CUSTOMIZABLE



PRECISION
CONTROL

JOYSTICK OPERATION	PG 2
AXIS OPTIONS JOYSTICK ACTION OPTIONS HANDLE TRAVEL OPTIONS	


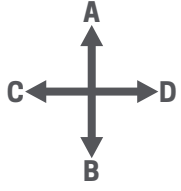

DRIVE ARRANGEMENTS / CONTACTS	PG 3
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AXIS OPTIONS		
	OR	
	OR	
SINGLE AXIS		DUAL AXIS
		DUAL HANDLE / DUAL AXIS

JOYSTICK ACTION		
	OR	
SPRING RETURN	OR	MAINTAINED
Returns to center		Holds at detent steps
		
		FRICTION HELD
		Holds throughout

HANDLE TRAVEL OPTIONS		
	OR	
OPEN GATE	OR	CROSS GATE
Unrestricted handle travel up to +/- 36°		Guided handle travel up to +/- 36° travel
		
		CUSTOM
		Available upon request in pattern of your choice.

SINGLE AXIS DRIVE ARRANGEMENT OPTIONS

	<p>LH RH</p>	OR		OR	
	VNSO-E		VNSO-G		VNSO-A

DUAL AXIS DRIVE ARRANGEMENT OPTIONS

	<p>LH RH</p>	OR	
	VNSO-V		VNSO-AA
		OR	
	VNSO-EA		VNSO-H

DUAL HANDLE / DUAL AXIS DRIVE ARRANGEMENT

	VNSO-GGEA	

RH = Right-hand Mount
 LH = Left-hand Mount
 All joysticks are supplied standard as right-hand mount orientation unless specified otherwise

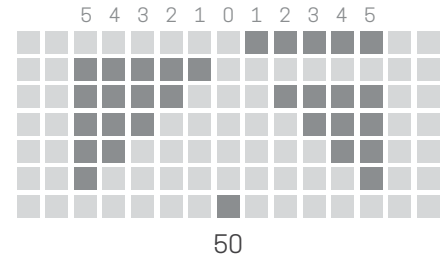
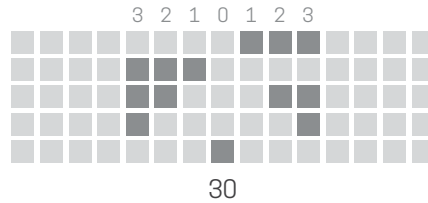
CONTACT SEQUENCES

STEPPED

DETENT OPTIONS

- 1-0-1
- 2-0-2
- 3-0-3
- 4-0-4
- 5-0-5
- 6-0-6
- 7-0-7

COMMON STEPPED SEQUENCES

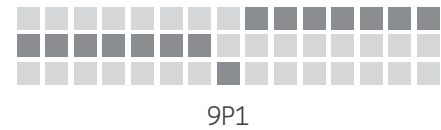
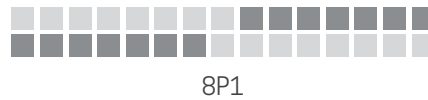


OR

STEPLESS

- DETENT
- 0 (NULL)

COMMON STEPLESS SEQUENCES



See **contact sequences literature** to view all standard contact sequences for VNSO joysticks.

CONTACT TYPE

EExd certified contacts available upon request

STANDARD (AC)

PART #: 03.016

OR

GOLD (LOW VOLTAGE)

PART #: 03.076

OR

DC

PART #: 30.105



STANDARD SPECIFICATIONS

OF CONTACTS:

Up to 10 double pole, snap-in blocks
(i.e. 20 circuits for each axis)

MAX. SWITCHING CAPACITY (AC)

Making - 100 amps
Breaking - (0.7PF) 80 amps 240V

RATING (AC)

Continuous 16 amps @ 240V
Resistive 8 amps @ 240V
Inductive 6 amps @ 240V

ELECTRO-MECHANICAL LIFE (AC)

Resistive Operations:

1 million @ 8 amps 240V
10 million @ 2 amps 240V

Inductive Operations:

1 million @ 6 amps 240V
10 million @ 2 amps 240V

POTENTIOMETERS Other potentiometers available upon request

	OR		OR		OR	
<p>3-WIRE 5K PART # (W/ BOARD): 04.512</p>		<p>4-WIRE 10K PART # (W/ BOARD): 04.497</p>		<p>4-WIRE 2x1K PART # 04.021</p>		<p>4-WIRE 2x5K PART # 04.015</p>
<p>TYPE Clarostat</p> <p>STYLE Conductive Plastic</p> <p>RATING 0.5 Watt</p>		<p>REVOLUTIONS 2 - 5 Million</p> <p>WIPER CURRENT 0mA to 10mA</p> <p>ELECTRICAL ANGLE 260 degree</p>		<p>TYPE PD550/PW55</p> <p>STYLE Wire Wound</p> <p>RATING 3 Watt</p>		<p>REVOLUTIONS 10 Million</p> <p>WIPER CURRENT 25mA to 100mA</p> <p>ELECTRICAL ANGLE 250 degree</p>

INDUCTIVE ROTARY TRANSFORMERS

<p>DGO-1 (115/50V) PART #: 04.024</p>	OR	<p>DGO-2 (220/50V) PART #: 04.025</p>	OR	<p>DGO-3 (115/30V/30V) WITH ESS03 AC/DC CONVERTER DGO-3 PART #: 04.030</p>
		<p>High life contactless rotary transformers that are ideal for high duty applications where an AC signal is a requirement. See DGO literature for more details and specifications.</p>		<p>ROTATION +/- 105 degrees</p> <p>MAX LOAD 3VA</p> <p>WEIGHT 1.43 LB</p>
				<p>Converts AC signal to a DC reference signal that commands a variable drive. See ESS03 literature for more details.</p>

ESS10010 ANALOG AMPLIFIER



Generates a linear output voltage proportional to the joystick's handle position. Available with 3 or 4-wire pot in the configurations shown below. See **ESS10010 literature** for more details.

SUPPLY VOLTAGE
18 - 30 VDC

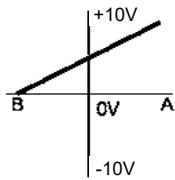
STANDARD OUTPUT
+/- 10V

OUTPUT CURRENT MAX
10 mA

OUTPUT ADJ. RANGE
3.5 - 11VDC

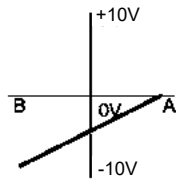
OFFSET ADJ. RANGE
0 - +/- 0.1V

POTENTIOMETER LIFE
2 - 5 million revolutions



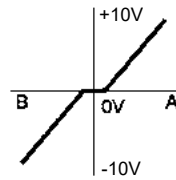
0V to +V

OR



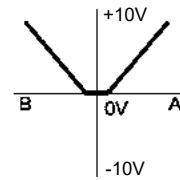
-V to 0V

OR



-V to +V with center

OR



+V to +V with center

4-20 mA TRANSMITTER (2-WIRE CIRCUIT)



Acts as a self powered control card with 4-20 mA output. Transmits a current signal which is proportional to the handle position. See **ESS420 literature** for more details.

ESS420
PART #:
05.317

SUPPLY VOLTAGE:
12 - 40 VDC

OUTPUT CURRENT
22 mA (max)

ADJUSTMENT RANGE
2-22 mA

8 BIT GRAY CODE ABSOLUTE ENCODER

Other output types available upon request



Produces a gray code digital output in a completely contactless system with high noise immunity. See **OEL8G-K literature** for more details.

OEL8G-K
PART #
04.770

RESOLUTION
255 discrete counts
in each direction

SUPPLY CURRENT
Typical 100 mA

OUTPUT CURRENT
Max. 20 mA

MAX SWITCHING FREQ
50 kHz

STANDARD HANDLES

**STANDARD
2-PIECE**



ROUND BALL



**PUSH DOWN TO
OPERATE
(CONTACT)**

MODEL #: TU



**PULL UP TO
OPERATE
(CONTACT)**

MODEL #: TYU



STANDARD HANDLES WITH PUSH BUTTON

**EXTENDED
PUSH BUTTON**

MODEL #: HU



**FLUSH
PUSH BUTTON**

MODEL #: HDU



**RECESSED
PUSH BUTTON**

MODEL #: HDVU



STANDARD HANDLES WITH MECHANICAL INTERLOCK

**MECHANICAL
INTERLOCK (MI)**

MODEL #: ZU



**MI & EXTENDED
PUSH BUTTON**

MODEL #: HDFUZ



**MI & FLUSH
PUSH BUTTON**

MODEL #: HDUZ



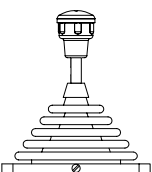
**MI & RECESSED
PUSH BUTTON**

MODEL #: HDVUZ



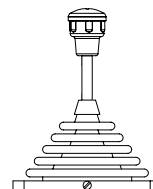
All model #s listed above feature 1 NO (normally opened) and 1 NC (normally closed) contact that is actuated by a flex shaft.
See **standard handle literature** for more contact options.

HANDLE HEIGHT*



5 1/2" (STANDARD)
[140 MM]

OR



7 1/8"
[180 MM]

*Handle height shown is an estimated measurement from the panel to the top of the handle and will vary based on handle style.

FIGHTER GRIPS

FG-3

Fighter grip handle with optional:

- Rocker Switches
- Thumbwheels
- Push Buttons
- Trigger



HEIGHT: 7.5" [191]

FG-4

Fighter grip handle with optional:

- Rocker Switches & Thumbwheels
- Push Buttons
- Trigger
- Hand Rest
- Twist Function



HEIGHT: 8" [204]

ROCKER HANDLES

RH

Rocker handle with handrest and optional:

- (Top) Rocker Switch
- (Top) Momentary Push Button
- (Top) Maintained Push Button
- (Side) Momentary Push Button



HEIGHT: 7.3" [186]

RHS

Rocker handle with optional:

- (Top) Rocker Switch
- (Top) Momentary Push Button
- (Top) Maintained Push Button



HEIGHT: 6.3" [160]

T HANDLES

MG1

T Handle with optional:
Side Push Button



HEIGHT: 4.9" [125]

MG2

T Handle with optional:
Side Push Buttons



HEIGHT: 6.9" [175]

MG13

Twist handle with optional:
Side Push Button



HEIGHT: 4.5" [115]

CUSTOM HANDLES

Contact us today to learn more about our engineering & design services.



MISC. HANDLES

MG9 / MG25

Palm handle with optional:
Top & Side Push Buttons



HEIGHT: 6" [153]

MG27

Options:
Extended or Recessed Push Button



HEIGHT: 5.3" [135]

BH

Lever handle with optional:

- (Top) Rocker Switch
- (Top) Momentary Push Button
- (Side) Lever Actuated Momentary Push Button

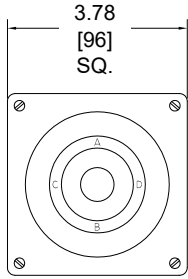


HEIGHT: 6.8" [173]

MOUNTING DETAILS

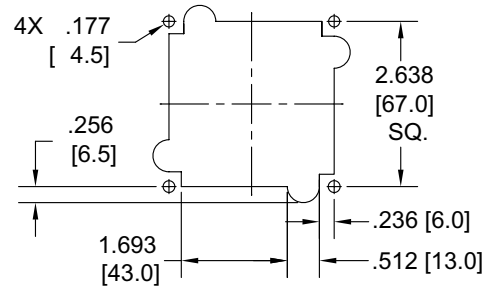
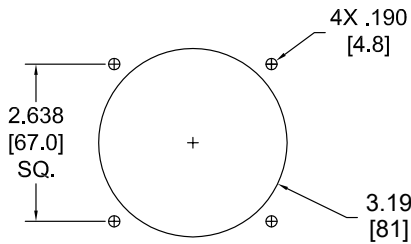
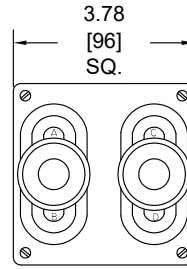
STANDARD MOUNTING*

Mounts from below.



GGEA MOUNTING

Mounts from below.



*Applicable for all handles except FG4-L and FG4-R (wide) handle types. See **FG-4 literature** for mounting details.

MOUNTING PLATE OPTIONS



OR



SNAP-ON

Clear plastic w/ white insert

SCREW-ON

Black aluminum

LABELING OPTIONS



OR



CUSTOM TEXT

With snap-on or screw-on plate

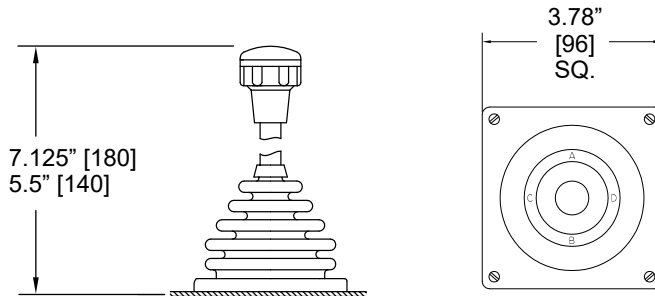
BLANK

With snap-on or screw-on plate

DIMENSIONS

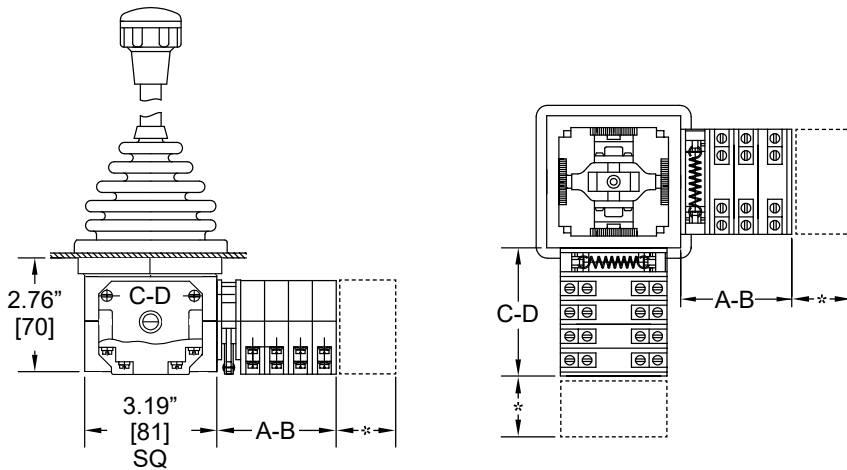
ABOVE THE PANEL

Shown with 2-piece handle.



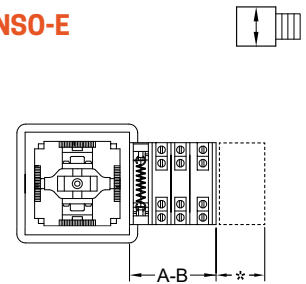
Handle	Height
BH	6.8" [173]
FG-3	7.5" [191]
FG-4	8" [204]
MG1	4.9" [125]
MG2	6.9" [175]
MG9	5" [153]
MG25	6" [153]
MG13	4.5" [115]
MG27	5.3" [135]
RH	7.3" [186]
RHS	6.3" [160]

VNSO-V

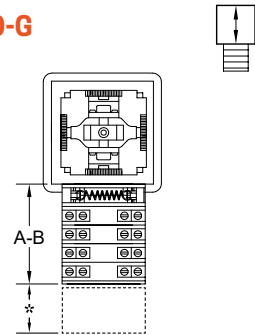


*See output device dimensions on page 13

VNSO-E



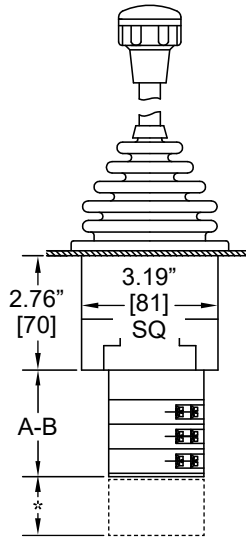
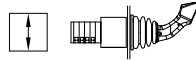
VNSO-G



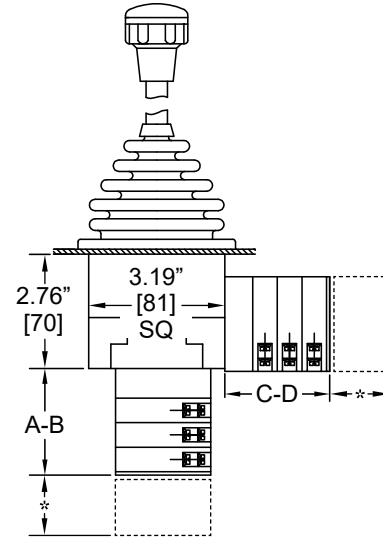
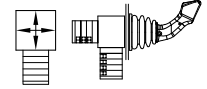
# of Contact Blocks	1	2	3	4	5	6	7	8	9	10
Length of A-B and/or C-D Drives	1.38" [35]	1.97" [50]	2.56" [65]	3.15" [80]	3.74" [95]	4.34" [110]	4.92" [125]	5.51" [140]	6.10" [155]	6.69" [170]

DIMENSIONS

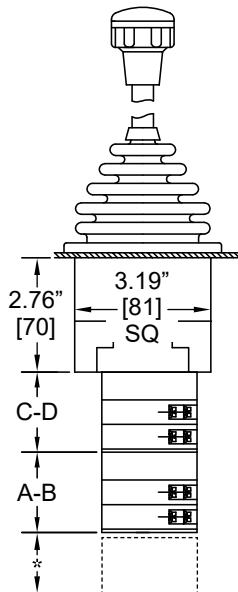
VNSO-A



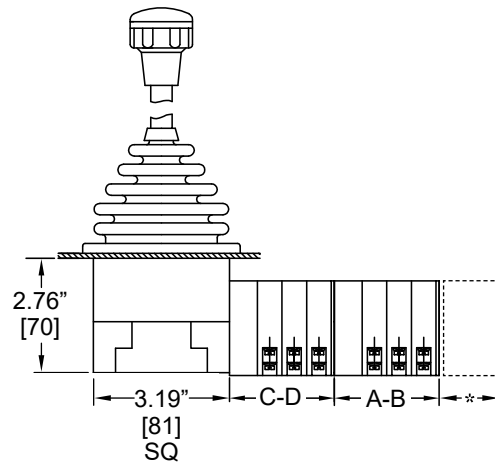
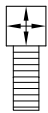
VNSO-EA



VNSO-AA



VNSO-H



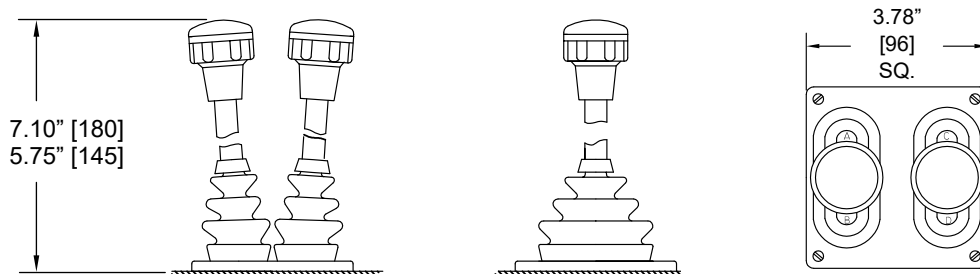
*See output device dimensions on page 13

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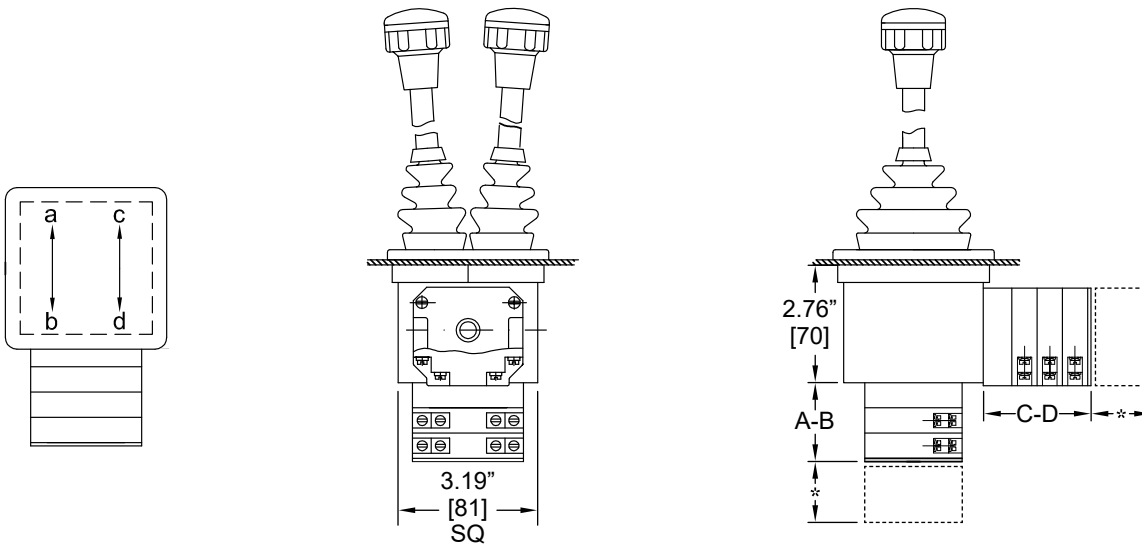
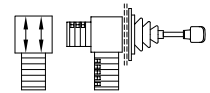
DIMENSIONS

VNSO-GGEA ABOVE THE PANEL

Shown with 2-piece handles.



VNSO-GGEA



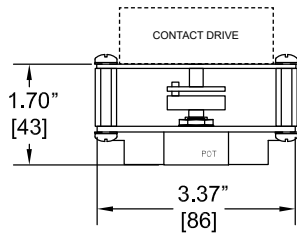
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OUTPUT DEVICE DIMENSIONS

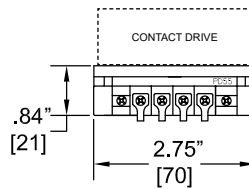
CLAROSTAT POTENTIOMETERS

Adds 1.70 inches onto contact drive



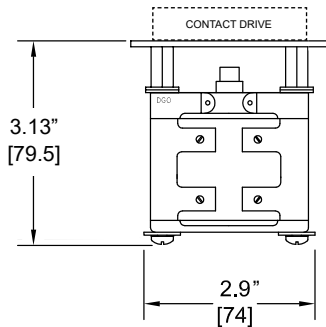
PD550 POTENTIOMETERS

Adds .84 inches onto contact drive



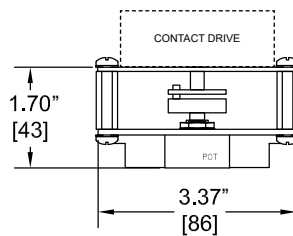
DGO TRANSFORMERS

Adds 3.13 inches onto contact drive



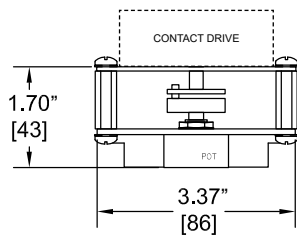
4-20 mA TRANSMITTER

Adds 1.70 inches onto contact drive



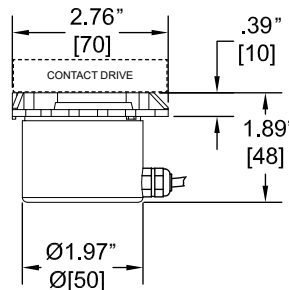
ESS10010 ANALOG AMPLIFIER

Adds 1.70 inches onto contact drive



OEL8G-K ENCODER

Adds 1.89 inches onto contact drive



MECHANICAL DATA

Mechanical Life 20 million plus life cycles

Handle Travel Up to ± 36 degrees

Gear Ratio 3:5:1

ENVIRONMENTAL DATA

Operating Temperature -25° to $+70^{\circ}$ C

Storage Temperature -40° to $+70^{\circ}$ C

IP Rating IP54 (Standard)
Up to IP56 (Handle Dependent)