VNS2 / VNSB2
MILL DUTY
MASTERSWITCH & JOYSTICK CONTROLLER

Application:
The TYPE VNS2 / VNSB2 series of Joystick Controllers are characterized by their unmatched versatility and rugged construction. They provide step and stepless control for AC & DC variable speed drives and electro-hydraulic proportional valves. Applications include: Steel, Rolling Mill and Foundry Cranes, Mining Shovels and Excavators, and Logging Equipment.

Features:
- **Rugged Construction:** Forged nickel chromium gimbal mechanism, hardened bearings.
- **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 or 2 axis control with non-simultaneous or simultaneous handle operation. Both standard and custom switching patterns available.
- **Handle:** Variety of handle styles and handle operated dead-man functions.
- **Precise Step Control:** Up to 7-0-7 individually detented steps in each axis.
- **Contacts:** (10) 25A 600 VAC or 2A 250 VDC inductive double pole field replaceable contacts. DC contacts with magnetic blowouts.
- **Potentiometers:** 0.5 watt 5 million revolution conductive plastic potentiometers furnished standard.
- **Electronics:** Proportional Feathering Control (P.F.C.) electronic amplifiers for operation of Electro-Hydraulic valves and strokers.
- **Enclosures:** Variety of standard steel and fiberglass consoles available; NEMA 1, 3R, 12 and 13.
VNS2 / VNSB2 ORDERING INFORMATION

**Basic Assembly:** 9.5" handle height, 2-piece handle, boot and mounting plate supplied standard.

**Drive Arrangement:** See VNS2 Dimensions for selecting contact drive mounting arrangements.

**Handle:** Reference Handle section for handle options and custom grips.

**Shaft length:** 8"

**Contacts:** Each contact block supplied with 2 poles.

**Output Devices:**
- **Potentiometers:** 0.5 watt conductive plastic 5 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 absolute encoder information sheet.
- **Transformer:** See DGO 1, 2 & 3 Rotary Inductive Differential Transformer information sheet.

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**VNS2 TECHNICAL DATA**

**MECHANICAL:**
- **Operating Temperature:** -25°C to +70°C
- **Detented Positions:** Up to 7-0-7 Steps.
- **Gear Ratio:** 3:1 (Handle deflection ±40°, cams and potentiometers ±120°).
  (Other angles available consult factory).
- **Mechanical Life:** 20 million plus cycles.

**Approvals:** CSA File #15040

**ELECTRICAL:**
- **Contacts:** 10 Double pole replaceable blocks and 20 circuits for each axis.
  (Consult factory if additional circuits required)
- **Terminals:** M5 machine screws
- **VNS2 Rating AC:**
  a) AC continuous 25 amps @ 600V
  b) AC resistive 20 amps @ 240V
  c) AC inductive 14 amps @ 240V
- **VNSB2 Rating DC:** (with magnetic blow-out)
  Resistive 5 amps 250V
  Inductive 2 amps 250V
- **Max. Switching Capacity:**
  Making - 160 amps
  Breaking - (0.7PF) 160 amps 240V
**VNS2 / VNSB2 DIMENSIONS**

Drive Arrangement Selection Table

<table>
<thead>
<tr>
<th>VNS2-E</th>
<th>VNS2-G</th>
<th>VNS2-A</th>
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<td><img src="VNS2-E.png" alt="Image" /></td>
<td><img src="VNS2-G.png" alt="Image" /></td>
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<table>
<thead>
<tr>
<th>VNS2-V</th>
<th>VNS2-M</th>
<th>VNS2-H</th>
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<td><img src="VNS2-M.png" alt="Image" /></td>
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<th>VNS2-EA</th>
<th>VNS2-AA</th>
<th>VNS2-GG</th>
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**Drive Arrangement Selection Table**

<table>
<thead>
<tr>
<th>Pos.</th>
<th>W</th>
<th>H</th>
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</thead>
<tbody>
<tr>
<td>1-0-1</td>
<td>10°</td>
<td>2.50</td>
</tr>
<tr>
<td>2-0-2</td>
<td>20°</td>
<td>3.87</td>
</tr>
<tr>
<td>3-0-3</td>
<td>30°</td>
<td>5.00</td>
</tr>
<tr>
<td>4-0-4</td>
<td>40°</td>
<td>6.37</td>
</tr>
<tr>
<td>5-0-5</td>
<td>40°</td>
<td>6.37</td>
</tr>
<tr>
<td>6-0-6</td>
<td>35°</td>
<td>5.75</td>
</tr>
</tbody>
</table>

**L1 or L2 Dimensions**

| 2.28 | 3.15 | 4.00 | 4.88 | 5.75 | 6.61 | 7.48 | 8.35 | 9.21 | 10.07 |

**Double Pole Contact Blocks**

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

*IMPORTANT: Consult factory for critical dimensions and custom options.*

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Pub. # 26.C7