NSO-SFA
RUGGED CAST DESIGN
SINGLE AXIS CONTROLLER

Construction:
The TYPE NSO-SFA single axis vertical mill masterswitch controllers are characterized by their unmatched versatility and rugged construction.

Space saving design, cast aluminum construction, IP56 housing, heavy-duty torsion spring and marine epoxy paint make this controller resistant to abuse and ideally suited for high-duty cycle mill applications and environmentally challenging marine applications.

Your specific control requirements can be accommodated by a variety of standard and custom engineered configurations including directional and speed control of AC/DC drives, electro-hydraulic valves or any other control applications requiring discrete, stepped and digital or analog proportional outputs.

This single axis controller is available with a variety of standard and custom handles and grips with push buttons and levers.

Application:
For use on shipboard applications, dredgers and offshore rigs for both above and below deck controlling of cranes, windlasses, engine governors and bow thrusters. The NSO-SFA is also popular on cranes and other material handling equipment in steel mills, foundries and process lines as well as mining vehicles, excavating and logging equipment.

Features:
- Compact, versatile design
- Rugged, IP56, cast construction
- Space saving design
- 10 million cycle mechanical operating life
- Rugged 8mm diameter stainless steel handle shaft
- Corrosion resistant components
- Double pole field replaceable contacts
- Direct drive proportional output system

Options:
- Maintained or friction held handle
- Large variety of optional handle configurations including: push button, mechanical interlock and rocker switch handles
- Stepped detents up to 7-0-7
- Large selection of proportional outputs including potentiometer, Rotary Differential Transformer (DGO), encoder, 4-20ma, 10V amplifier and CAN bus
- Variety of steel enclosures and pedestals

J.R. MERRITT CONTROLS, INC.
Stratford, CT • 1-800-333-JRMC • www.jrmerritt.com
**NSO-SFA ORDERING INFORMATION**

Drive Arrangement: Single axis cast housing  
Basic Assembly: 5.7 [145] handle height off panel, housing and mounting gasket supplied standard  
Handle: 2 Piece (standard)  
Handle Action: Spring return (standard)  
Output: Proportional, discrete  
Output Devices: Potentiometer, Rotary Differential Transformer (DGO), encoder, 4-20mA, 10V amplifier and CAN bus

### NSO-SFA Technical Data

**Mechanical:**
- **Mechanical Life:** 10 million cycles for maintained action
- **Gear Ratio:** 3.3:1
- **Detented Positions:** 0° neutral & 1-0-1 to 7-0-7
- **Handle Travel:** ±42° max.
- **Potentiometer Rotation:** ±140° (other angles available – consult factory)

**Environmental:**
- **Operating Temperature:** -25 to +60° C
- **Storage temperature:** -40 to +60° C
- **Protection above the panel:** IP56 (above the panel)

**Mechanical Options:**
- **Handle:** See handle section for a selection of handle options
- **Shaft Length:** Consult factory for special shaft length requirements
- **Handle Action:** Maintained, Friction Brake
- **Gates:** Consult factory for special gate requirements

**Electrical:**
- **Contacts:** Up to 10 double pole snap-in blocks (20 circuits) furnished standard  
  Consult factory if additional circuits are required
- **Terminals:** Captive saddle clamps
- **Wire size:** 12 AWG maximum
- **AC Rating:** AC continuous: 16 amps @ 240 volts  
  AC resistive: 6 amps @ 240 volts  
  AC inductive: 6 amps @ 240 volts  
  DC resistive: 1.7 amps @ 42 volts max  
  DC inductive: 1.1 amps @ 42 volts max
- **Electro Mechanical Life:**  
  Resistive: 1 million operations @ 8 amps 240V  
  10 million operations @ 2 amps 240V  
  Inductive: 1 million operations @ 6 amps 240V  
  10 million operations @ 2 amps 240V

**Electrical Options:**
- **Potentiometers:** 0.5 watt 5K 3-wire or 10K 4-wire center tap, 5 million revolutions  
  Connections: 6 position terminal block with #6 screw terminal  
  Please consult factory for special potentiometer requirements
- **Rotary Differential Transformers:**  
  115/50 VAC (DGO-1)  
  220/50 VAC (DGO-2)  
  115/30/30 VAC (DGO-3)
- **Electronics:** Encoders, 4-20mA, pot amplifiers, CAN bus and motor control  
  Connections: Varies with product

**Please consult factory for other available options not listed.**
**Mounting:**
Mount attachment plate ① and gasket ② with (4) 10-32 screws to the panel ③. Mount the contact drive system ④ with (4) screws onto the attachment plate. Mount the drive ⑤ with (4) screws onto the attachment plate.

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<thead>
<tr>
<th>Contact Blocks</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
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<td>[70]</td>
<td>[85]</td>
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<td>[115]</td>
<td>[130]</td>
<td>[145]</td>
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**Handle wiring:**
Two wires max. (one push button)