NV series

Compact 5-way navigation thumb controls • switching technology

DISTINCTIVE FEATURES
Tactile feedback in all directions & optional pushbutton
Compact and low profile behind panel
Shock, vibration & salt spray resistant
1 million lifecycles
Sealed to IP69K

ENVIRONMENTAL SPECIFICATIONS
• Front Panel Sealing : IP69K according to DIN 40050-9, IP67 according to IEC 60529
• Shock Resistance per IEC 60068-2-27 : 3 sinusoidal impulse 300m/s² 18ms on 3 axis
• Vibrations (random, 3 axis) per IEC 60068-2-64 : 10-350Hz
• Vibrations (sinus) per IEC 60068-2-6 : 10-200Hz / 20m/s² : dwell period 30 minutes
• Salt Spray : 96 h per IEC 60068-2-11/KA
• Damp Heat per IEC 68-2-78 : 40 °C (104 °F) 93% HR - 10 days
• Cold and Dry Heat, Temperature Shock per IEC 68-2-14/Na : -40°C to +85°C (-40 °F to +185 °F)- 10 cycles
• Operating Temperature: -40 °C to +65 °C (-40 °F to +149 °F)

ELECTRICAL SPECIFICATIONS
• Electrical Function : 4 or 5 momentary NO
• Max. Current/Voltage Rating with Resistive Load : 50 mA 12 VDC
• Electrical Life at Full Load : 1,000,000 cycles per direction
1,000,000 cycles for validation
• Output :
  MOLEX 6 pin connector (Ref: 53398-0671)
  Mating connector Molex 51021-0600

The company reserves the right to change specifications without notice.
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MECHANICAL SPECIFICATIONS

• Expected Life : 1 million cycles per direction
• Angular Travel : 12°
• Pushbutton Travel : 1.5 mm
• Operating force : (customizable on request) Direction : 4 N ±1 N Validation : 11 N ±2 N
• Panel Thickness : 1 to 10 mm (.0039 in to .39 in)
• Torque : 2 Nm min. applied to nut
• Mechanical Strength : The switch can withstand a force of 100 N applied in any directions
• Mass/Weight : 17.5 g ±2 g ( 0.6 oz ±0.07 oz)

MATERIALS

• Sealing Gasket : Elastomeric
• Case : Brass, black chrome plated
• Actuator : ABS
• Lever : Steel
• Nut : Brass, black chrome plated
• Output wires (flying lead terminals) : AWG24, section 0.23 mm², UL 1213 (military grade)
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

PANEL CUT-OUT

CONNECTIONS

CONNECTOR OUTPUT - REAR VIEW

FLYING LEADS OUTPUT
## BUILD YOUR PART NUMBER

**NV**

<table>
<thead>
<tr>
<th>ACTUATOR STYLES</th>
<th>PANEL MOUNT</th>
<th>CONTACT</th>
<th>OUTPUT</th>
<th>PUSHBUTTON</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Castle</td>
<td>D Drop-in</td>
<td>1 50 mA</td>
<td>C Connector</td>
<td>0 No</td>
</tr>
<tr>
<td>2 Conical</td>
<td></td>
<td></td>
<td>F Flying leads 500 mm</td>
<td>1 Yes</td>
</tr>
<tr>
<td>3 Lever</td>
<td></td>
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</tbody>
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<table>
<thead>
<tr>
<th>LIMITER</th>
<th>ACTUATOR COLORS</th>
<th>FORCE</th>
</tr>
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<tbody>
<tr>
<td>C Cross</td>
<td>P1 Blue</td>
<td>S Standard</td>
</tr>
<tr>
<td>V 1 axis, vertical</td>
<td>P2 Black</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P3 Green</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P4 Grey</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P5 Yellow</td>
<td></td>
</tr>
<tr>
<td></td>
<td>P6 Red</td>
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</tr>
<tr>
<td></td>
<td>P7 White</td>
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</tr>
<tr>
<td></td>
<td>P9 Orange</td>
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</tr>
<tr>
<td></td>
<td>PM Desert tan</td>
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</tbody>
</table>

### ABOUT THIS SERIES

**Notice**: please note that not all combinations of above numbers are available. Refer to the following pages for further information.

**Mounting accessories**: Standard hardware supplied: 1 hex nut 19 mm across flats
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4 DIRECTIONS

Connector output
NVH-D1C0
Flying lead output
NVH-D1F0

4 DIRECTIONS + PUSHBUTTON

Connector output
NVH-D1C1
Flying lead output
NVH-D1F1

ACTUATOR STYLE

In the above part numbers, replace • with one of the following codes.

1 Castle
2 Conical
3 Lever