

# 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/s<sup>2</sup> 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/s<sup>2</sup> ; 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)



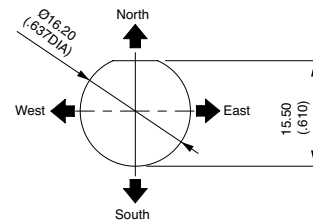
## MATERIALS

- 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 mm<sup>2</sup>, UL 1213 (military grade)

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

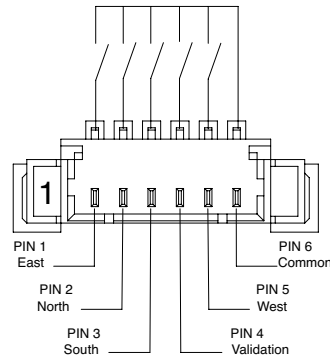


## PANEL CUT-OUT



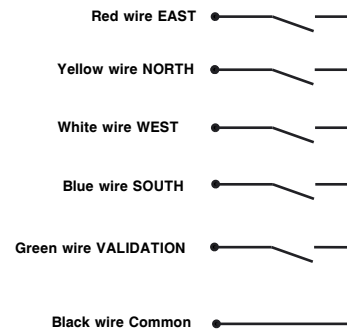
## CONNECTIONS

CONNECTOR OUTPUT - REAR VIEW



PIN 4 for validation version only

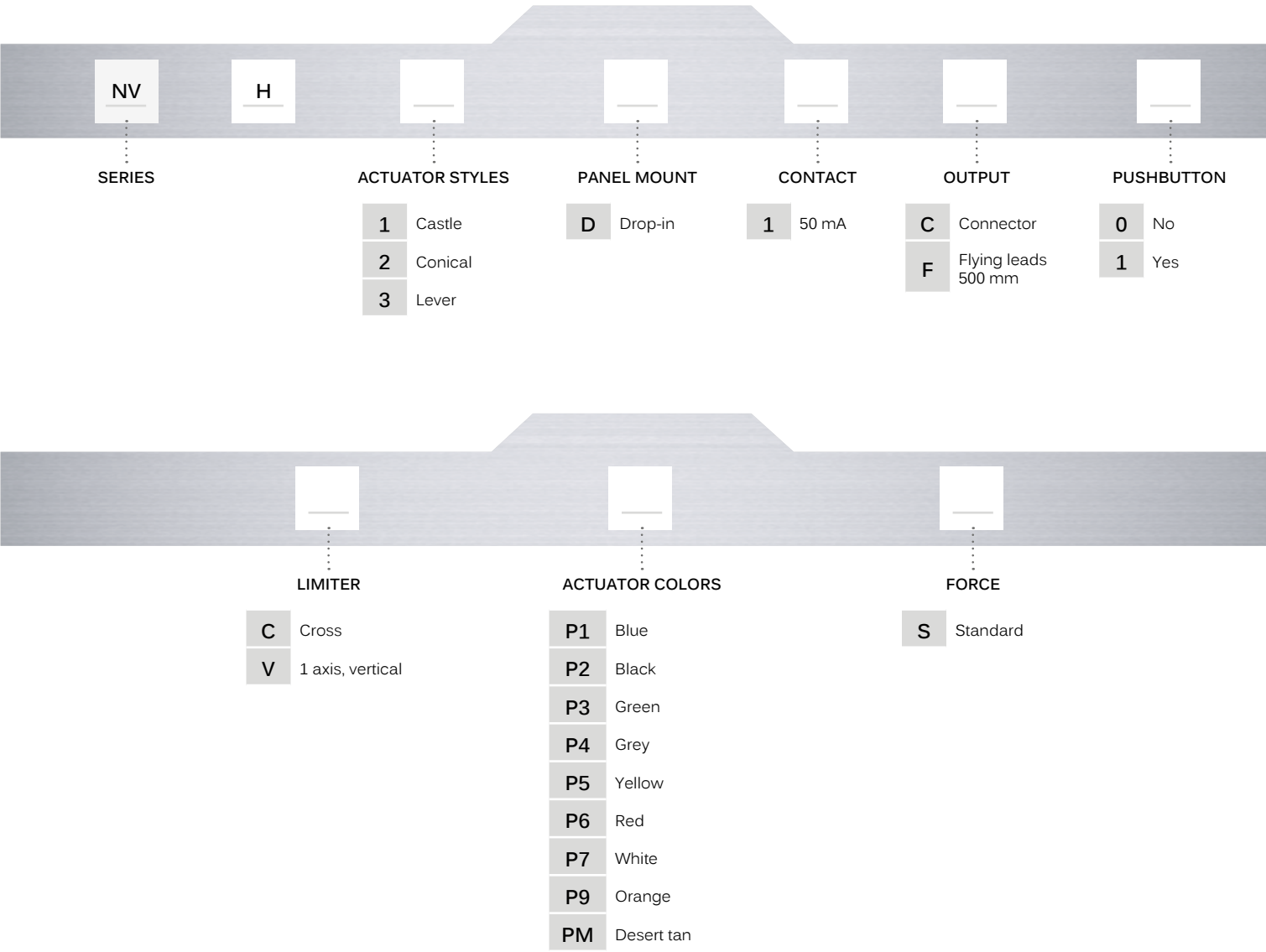
FLYING LEADS OUTPUT



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## BUILD YOUR PART NUMBER



## 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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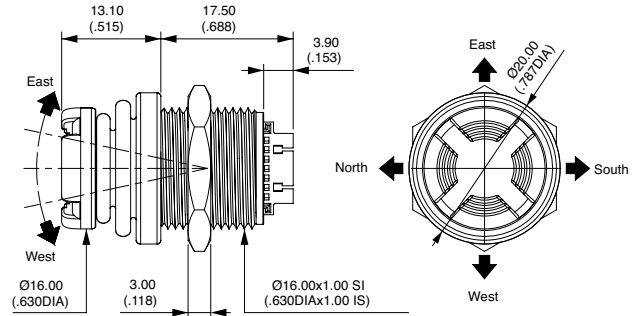
## 4 DIRECTIONS



Connector output  
**NVH•D1C0**

Flying lead output  
**NVH•D1F0**

FOR DIRECTION AVAILABLE



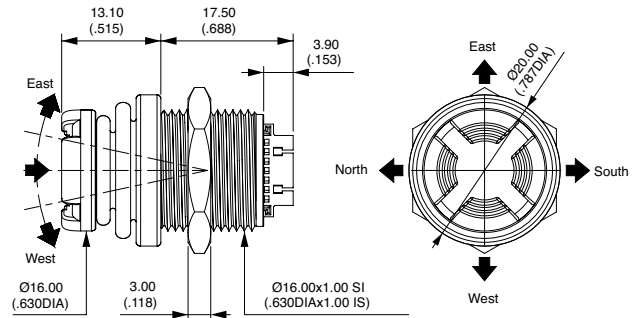
## 4 DIRECTIONS + PUSHBUTTON



Connector output  
**NVH•D1C1**

Flying lead output  
**NVH•D1F1**

FOR DIRECTION AVAILABLE



## ACTUATOR STYLE

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

