Valve Position Monitor  APL-2, 3, 4, 5N Series

MODEL : APL - 2N
- Enclosure : Weatherproof IP67/NEMA4&4X (Standard ) IP68(Option)
- Solid and compact design
- Bolts on visual position indicator
- Dual cable entries : 2 x 1/2 NPT(Standard)
- Terminal Strips : 8 points (0.08-2.5mm²)
- Captive cover bolts
- Easy mounting bracket
NAMUR standard stainless steel shaft and bracket.

MODEL : APL - 3N
- Enclosure : Weatherproof IP67/NEMA4&4X,7.9 (Standard ) IP68(Option)
- Solid and Durable design & various options available
- 3~4 additional switches - 8~16 points Terminal Strips
- Captive cover bolts
- Easy mounting bracket
NAMUR standard stainless steel shaft and stainless steel or steel bracket.

MODEL : APL - 4N
- Enclosure : Weatherproof IP67/NEMA4&4X,7.9 (Standard ) IP68(Option)
- Explosionproof : EEx d IIC T6
- Solid and Flexible design & various options available
- 3~4 additional switches
- 8~20 points Terminal Strips
- Various options switches
- Cable entries : 2 x 3/4 NPT(Standard)
- Terminal Strips : 8 points (0.08-2.5mm²)
- Captive cover bolts
- Easy mounting bracket
NAMUR standard stainless steel shaft and stainless steel or steel bracket.

STANDARD SPECIFICATION

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Cable entries</td>
<td>Two NPT1/2&quot;</td>
<td>Two NPT1/2&quot;</td>
<td>Two NPT3/4&quot;</td>
<td>Two NPT3/4&quot;</td>
</tr>
<tr>
<td>Ambient temperature</td>
<td>-20~80°C</td>
<td>-20~80°C</td>
<td>-20~80°C</td>
<td>-20~80°C</td>
</tr>
<tr>
<td>Terminal strips</td>
<td>8 points (0.08-2.5mm²)</td>
<td>8 points (0.08-2.5mm²)</td>
<td>8 points (0.08-2.5mm²)</td>
<td>8 points (0.08-2.5mm²)</td>
</tr>
<tr>
<td>Position indicator</td>
<td>0~90°(90°turn free joint) close:red open:yellow</td>
<td>0~90°(90°turn free joint) close:red open:yellow</td>
<td>0~90°(90°turn free joint) close:red open:yellow</td>
<td>0~90°(90°turn free joint) close:red open:yellow</td>
</tr>
<tr>
<td>Switches</td>
<td>Mechanical switch x2 proximity sensor x2</td>
<td>Mechanical switch x2 proximity sensor x2</td>
<td>Mechanical switch x2 proximity sensor x2</td>
<td>Mechanical switch x2 proximity sensor x2</td>
</tr>
<tr>
<td>Painting</td>
<td>Chromate Polyester powder coating(black)</td>
<td>Chromate Polyester powder coating(black)</td>
<td>Chromate Polyester powder coating(black)</td>
<td>Chromate Polyester powder coating(black)</td>
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OPTION SPECIFICATION

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Option temperature</td>
<td>-40°C ~ 150°C</td>
<td>-40°C ~ 150°C</td>
<td>-40°C ~ 150°C</td>
<td>-40°C ~ 150°C</td>
</tr>
<tr>
<td>Terminal strips</td>
<td>16 points (0.08-2.5mm²)</td>
<td>20 points (0.08-2.5mm²)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Switches</td>
<td>-</td>
<td>Mechanical switch with proximity sensor x4</td>
<td>Mechanical switch with proximity sensor x4</td>
<td>Mechanical switch with proximity sensor x4</td>
</tr>
<tr>
<td>Potentiometer</td>
<td>-</td>
<td>1k ohm standard. 5k ohm 0-10k ohm</td>
<td>1k ohm standard. 5k ohm 0-10k ohm</td>
<td>1k ohm standard. 5k ohm 0-10k ohm</td>
</tr>
<tr>
<td>Current output signal unit</td>
<td>-</td>
<td>4~20mA DC</td>
<td>4~20mA DC</td>
<td>4~20mA DC</td>
</tr>
<tr>
<td>Painting</td>
<td>Nylon others on request</td>
<td>Nylon others on request</td>
<td>Nylon others on request</td>
<td>Nylon others on request</td>
</tr>
</tbody>
</table>

FEATURES
- Solid and flexible design
- Aluminum die-casting housing and powder coating.
- Bolts on visual position indicator
- Quick-set cam
Spring loaded splined cam.
No need to adjust again after initial setting.
- Easy setting without tool
- No need to adjust again after initial setting.
- Spring loaded splined cam.
- Easy to set the visual position indicator.
- Unique design to put the visual indicator on the threaded joint type cover.
- Unique design to hold bolts inside cover.
- No worry to loose bolts while cover open.
- Unique design to hold bolts inside cover.
- Easy mounting bracket
NAMUR standard stainless steel shaft and bracket.
### Valve Position Monitor

**APL-2N & APL-3N Weatherproof Design**

- **Enclosure**
  - Solid and Compact design
  - Aluminium die-casting
  - IP67

- **Painting**
  - Powder coating

- **Housing Body**
  - Aluminium die-casting

- **Quick-Set Cam**
  - Easy to set, Splined cam
  - Open-Yellow, Close-Red

- **O-rings**

- **Various Switches**
  - Mechanical Proximity(P & F)
  - Reed Proximity

- **Shaft**
  - Stainless steel
  - NAMUR

- **Mounting Bracket**

- **Visual Position Indicator**
  - Poly-carbonated
  - Open-Yellow, Close-Red

- **Name Plate**
- **Housing Cover**
  - Aluminium die-casting

- **Terminal Strip**
  - Standard 8 points

- **Earth lug**

**APL-4N & APL-5N Explosionproof Design**

- **Enclosure**
  - Solid and Durable design
  - Aluminium die-casting
  - IP67 & Explosionproof design

- **Painting**
  - Powder coating

- **Name Plate**
- **Housing Cover**
  - Aluminium die-casting

- **Quick-Set Cam**
  - Easy to set, Splined cam
  - Open-Yellow, Close-Red

- **Captive Bolts**
  - Stainless steel

- **O-rings**

- **Various Switches**
  - Mechanical Proximity(P & F)
  - Reed & Proximity

- **Shaft**
  - Stainless steel
  - NAMUR

- **Mounting Bracket**

- **Visual Position Indicator**
  - Poly-carbonated
  - Open-Yellow, Close-Red

- **Terminal Strip**
  - Standard 8 points

- **Earth lug**

- **Multi-Ports**
  - Main.2Ports
  - APL-4N: Max.4Ports
**SWITCH SPECIFICATION**

- **Mechanical switch** -

  **Standard switches**
  2SPDT switches
  Contact arrangement:
  250VAC/16A, 250VDC/0.3A
  125VDC/0.6A, 30VDC/10A,
  - Operating frequency:
    600 operating per minute max (mechanical)
    60 operating per minute max (electrical)

  **Option switches**
  3SPDT switches
  Contact arrangement:
  250VAC/16A, 250VDC/0.3A
  125VDC/0.6A, 30VDC/10A,
  Except APL 2N series

  **Option switches**
  4SPDT switches
  Contact arrangement:
  250VAC/16A, 250VDC/0.3A
  125VDC/0.6A, 30VDC/10A,
  Except APL 2N series

  **DPDT switches**
  Contact arrangement:
  20amp 125/250VAC
  1HP 125 VAC
  2HP 250VAC
  0.5amp 250VDC
  Except APL 2N, 3N, 5N series

- **Proximity sensor** -

  **NJ2-V3-N P&F**
  (intrinsically safe)
  Inductive proximity sensor
  Voltage range : 8V DC
  Operating distance : 2mm

  **NBB2-V3-E2/E3 (PNP)**
  10-30V DC
  **NBB2-V3-E0 (NPN)**
  10-30V DC
  **NBB2-V3-Z4/Z5**
  5-60V DC
  **APL 4N Proximity sensor**
  **NJ2-12GM-40-E2**
  10-60V DC
  **NJ4-12GM-40-E2**
  10-60V DC
  **NBB2-12GM-40**
  6-60V DC
  Except APL 2, 3, 5N series

  **NPS17-SDN**
  Inductive proximity sensor
  Voltage range : 10~30V DC
  AC110V or 220V
  Operating distance : 5mm
  Except APL 2N series

  **Optional sensor**
  **NBB2-V3-E2/E3(PNP)**  10-30V DC
  **NBB2-V3-E0(NPN)**  10-30V DC
  **NBB2-V3-Z4/Z5**  5-60V DC
  APL 4N Proximity sensor
  **NJ2-12GM-40-E2**  10-60V DC
  **NJ4-12GM-40-E2**  10-60V DC
  **NBB2-12GM-40**  6-60V DC
  Except APL 2N, 3N, 5N series

  **2SPST switches**
  Contact Form  NO. NC
  Contact Rating  10W max
  Switching Voltage  200VDC max
  Switching Current  1A max
  Breakdown Voltage  250V/CD min
  Contact Resistance(initial)  0.3 Ohm max
  Electrical Life  10^7(6VDC, 10mA)

**Valve Position Monitor**

- **Reed proximity sensor** -

- **Mechanical switch** -

- **Proximity sensor** -
**Valve Position Monitor**

**STRUCTURE**

APL-5N Series

- Top visual position indicator
- Dual shaft
- Threaded joint design
- Namur standard shaft

Position monitor
Continuous visual position indicator
Made of high impact, heat, chemical resistance and transparent carbonate
Excellent corrosion protection
High visibility and reliability

*Re-adjustment available upon required direction (APL2-5N SERIES)*

**Material**

<table>
<thead>
<tr>
<th>Housing cover/body</th>
<th>Aluminium die casting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shaft</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Indicator cover</td>
<td>Polycarbonate</td>
</tr>
<tr>
<td>Cam</td>
<td>Polycarbonate</td>
</tr>
<tr>
<td>Spring</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Housing cover bolt</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>O-ring</td>
<td>NBR</td>
</tr>
<tr>
<td>Bushing</td>
<td>Bronze</td>
</tr>
<tr>
<td>E-ring (shaft)</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Earth lug</td>
<td>Stainless steel</td>
</tr>
<tr>
<td>Indicator</td>
<td>ABS/Polycarbonate</td>
</tr>
<tr>
<td>Bracket</td>
<td>Stainless steel</td>
</tr>
</tbody>
</table>

**Flow port Monitor**

L port, T port 3-way valve

**ELECTRICAL CONNECTION**

- Position transmitter & potentiometer -

**Potentiometer**

Potentiometer: 500~10K Ohm
Operating Temperature: -20 to 80
Except APL 2N series

**Position Transmitter**

Power Supply Range
- 12.5 to 37VDC (24V typical)
Output signal range: 4~20mA
Potentiometer: 0~1K Ohm
Operating Temperature: -20 to 80
Except APL 2N series

**Power Supply Requirements**

Power Supply Voltage: 12.5 V
Operating Region

**Flow port Monitor**

L port, T port 3-way valve

Captive spring - loaded cover bolts
Cover bolts are specially designed to prevent loosening it during maintenance or installation. (APL 5N Series)
**Mechanical switch**

10  2-SPDT
11  3-SPDT
12  4-SPDT
13  2-SPST
14  2-DPDT
15  2-SPDT + Potentiometer
16  2-SPDT + Signal unit (4-20mA)

**Enclosure**

3. Weather proof
4. Explosion proof (E Exd IIB T6)
5. Explosion proof (E Exd IIC T6)

**Proximity sensor**

20  P & F NJ2-V3-N
21  Autonics. PS17-5DNU
22  P & F NJ4-12GM-N
23  NBB2-V3

**Position Indicator**

**Reed type proximity sensor**

30  General type
30  Autonics. PS17-5DNU
30  P & F NJ4-12GM-N
30  NBB2-V3

**Last alphabet in model, C means plate steel, S means stainless steel**

**ORDERING INFORMATION**

- Enclosure
- Bolt on Position Indicator

**Bracket Namer Standard**

<table>
<thead>
<tr>
<th>Shape</th>
<th>Size</th>
<th>Model</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>25 x 50 H:20</td>
<td>MBP-50</td>
</tr>
<tr>
<td></td>
<td>30 x 80(130) H:30</td>
<td>MBP-100</td>
</tr>
<tr>
<td></td>
<td>30 x 80 H:30</td>
<td>MBP-200</td>
</tr>
<tr>
<td></td>
<td>30 x 130 H:30</td>
<td>MBP-300</td>
</tr>
<tr>
<td></td>
<td>30 x 130 H:50</td>
<td>MBP-400</td>
</tr>
<tr>
<td></td>
<td>30 x 80 H:20</td>
<td>MB-P-O-1C</td>
</tr>
<tr>
<td></td>
<td>30 x 80 H:30</td>
<td>MB-P-O-1S</td>
</tr>
<tr>
<td></td>
<td>30 x 130 H:30</td>
<td>MB-P-O-2C</td>
</tr>
<tr>
<td></td>
<td>30 x 130 H:50</td>
<td>MB-P-O-2S</td>
</tr>
<tr>
<td></td>
<td>30 x 130 H:30</td>
<td>MB-P-O-3C</td>
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<tr>
<td></td>
<td>30 x 130 H:50</td>
<td>MB-P-O-3S</td>
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</table>

**DIMENSION**

**APL 2N Series**

<table>
<thead>
<tr>
<th>NAME</th>
<th>SIZE</th>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>APL 2N</td>
<td>25 x 50</td>
<td>MBP-50</td>
</tr>
<tr>
<td>APL 2N</td>
<td>30 x 80</td>
<td>MBP-100</td>
</tr>
<tr>
<td>APL 2N</td>
<td>30 x 130</td>
<td>MBP-200</td>
</tr>
<tr>
<td>APL 2N</td>
<td>30 x 130</td>
<td>MBP-300</td>
</tr>
<tr>
<td>APL 2N</td>
<td>30 x 130</td>
<td>MBP-400</td>
</tr>
</tbody>
</table>

**APL 3N Series**

<table>
<thead>
<tr>
<th>NAME</th>
<th>SIZE</th>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>APL 3N</td>
<td>25 x 50</td>
<td>MBP-50</td>
</tr>
<tr>
<td>APL 3N</td>
<td>30 x 80</td>
<td>MBP-100</td>
</tr>
<tr>
<td>APL 3N</td>
<td>30 x 130</td>
<td>MBP-200</td>
</tr>
<tr>
<td>APL 3N</td>
<td>30 x 130</td>
<td>MBP-300</td>
</tr>
<tr>
<td>APL 3N</td>
<td>30 x 130</td>
<td>MBP-400</td>
</tr>
</tbody>
</table>

**APL 4N Series**

<table>
<thead>
<tr>
<th>NAME</th>
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<th>MODEL</th>
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<tbody>
<tr>
<td>APL 4N</td>
<td>25 x 50</td>
<td>MBP-50</td>
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<tr>
<td>APL 4N</td>
<td>30 x 80</td>
<td>MBP-100</td>
</tr>
<tr>
<td>APL 4N</td>
<td>30 x 130</td>
<td>MBP-200</td>
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<tr>
<td>APL 4N</td>
<td>30 x 130</td>
<td>MBP-300</td>
</tr>
<tr>
<td>APL 4N</td>
<td>30 x 130</td>
<td>MBP-400</td>
</tr>
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</table>

**APL 5N Series**

<table>
<thead>
<tr>
<th>NAME</th>
<th>SIZE</th>
<th>MODEL</th>
</tr>
</thead>
<tbody>
<tr>
<td>APL 5N</td>
<td>25 x 50</td>
<td>MBP-50</td>
</tr>
<tr>
<td>APL 5N</td>
<td>30 x 80</td>
<td>MBP-100</td>
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<tr>
<td>APL 5N</td>
<td>30 x 130</td>
<td>MBP-200</td>
</tr>
<tr>
<td>APL 5N</td>
<td>30 x 130</td>
<td>MBP-300</td>
</tr>
<tr>
<td>APL 5N</td>
<td>30 x 130</td>
<td>MBP-400</td>
</tr>
</tbody>
</table>

**Bracket Namer Standard**

- 25 x 50 H:20
- 30 x 80 H:20
- 30 x 80(130) H:30(50)
- 30 x 80 H:30
- 30 x 130 H:30
- 30 x 130 H:50

**Last alphabet in model, C means plate steel, S means stainless steel**

**ORDERING INFORMATION**

- Enclosure
- Bolt on Position Indicator

- Switch type

<table>
<thead>
<tr>
<th>Mechanical switch</th>
<th>Proximity sensor</th>
<th>Reed type proximity sensor</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 2-SPDT</td>
<td>20 P &amp; F NJ2-V3-N</td>
<td>30 General type</td>
</tr>
<tr>
<td>11 3-SPDT</td>
<td>21 Autonics. PS17-5DNU</td>
<td></td>
</tr>
<tr>
<td>12 4-SPDT</td>
<td>22 P &amp; F NJ4-12GM-N</td>
<td></td>
</tr>
<tr>
<td>13 2-SPST</td>
<td>23 NBB2-V3</td>
<td></td>
</tr>
<tr>
<td>14 2-DPDT</td>
<td></td>
<td></td>
</tr>
<tr>
<td>15 2-SPDT + Potentiometer</td>
<td></td>
<td></td>
</tr>
<tr>
<td>16 2-SPDT + Signal unit (4-20mA)</td>
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</tr>
</tbody>
</table>