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**VALVE POSITION MONITOR
 APL - SERIES**

**Weather proof
 Explosion proof
 Special options**



Patent No. : 0226232, 0383130, 0827347
 Design Right No. : 0236743, 0292715, 0292716, 0383546



Hologram shall be put on all products manufactured in the factory.

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

FEATURES



- Solid and flexible design
Aluminium 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
- Dual cable entries
Captive cover bolts
No worry to loose bolts while cover open.
Spring loaded cover bolts(APL-5N)
- Easy mounting bracket
NAMUR standard stainless steel shaft and bracket.






STANDARD SPECIFICATION

Model	APL- 2N Series	APL- 3N Series	APL- 4N Series	APL- 5N Series
Enclosure	Weatherproof IP67/NEMA4&4X	Weatherproof IP67/NEMA4&4X	Weatherproof IP67/NEMA4&4X Explosionproof E EX d IIB T6	Weatherproof IP67/NEMA4&4X Explosionproof E EX d IIC T6
Cable entries	Two NPT1/2"	Two NPT1/2"	Two NPT3/4"	Two NPT3/4"
Ambient temperature	-20℃~ 80℃	-20℃~ 80℃	-20℃~ 80℃	-20℃~ 80℃
Terminal strips	8 points (0.08-2.5mm ²)	8 points (0.08-2.5mm ²)	8 points (0.08-2.5mm ²)	8 points (0.08-2.5mm ²)
Position indicator	0~90° (90° turn free join) close:red open:yellow	0~90° (90° turn free join) close:red open:yellow	0~90° (90° turn free join) close:red open:yellow	0~90° (90° turn free join) close:red open:yellow
Switches	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2	Mechanical switch x2 proximity sensor x2
Painting	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)	Chromate Polyester powder coating(black)

OPTION SPECIFICATION

Model	APL- 2N Series	APL- 3N Series	APL- 4N Series	APL- 5N Series
Enclosure	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68 Explosionproof E EX d IIB T6 E EX ia IIC T6
Cable entries	Two PF1/2", PT1/2" M20, PG13.5	Two PF1/2", PT1/2" M20, PG13.5	FOUR PF3/4", PT3/4" M20, M25	Two NPT3/4" PT3/4"
Option temperature	-	-40℃ ~ 80℃ -20℃ ~ 150℃	-	-
Terminal strips	-	16 points (0.08-2.5mm ²)	20 points (0.08-2.5mm ²)	-
Position indicator	three position close:red open:Green	three position close:red open:Green	three position close:red open:Green	three position close:red open:Green
Switches	-	Mechanical switch x4 proximity sensor x4	Mechanical switch x4 proximity sensor x4	Mechanical switch x4 proximity sensor x4
Potentiometer	-	1k ohm standard. 5k ohm. 0-10k ohm	1k ohm standard. 5k ohm. 0-10k ohm	1k ohm standard. 5k ohm. 0-10k ohm
Current output signal unit	-	4~20mA DC 12.5 to 37VDC (24V typical)	4~20mA DC 12.5 to 37VDC (24V typical)	4~20mA DC 12.5 to 37VDC (24V typical)
Painting	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver	Nylon others on request red, green, blue, yellow, silver

 <p>(IP67,IP68)</p>	<p>MODEL : APL - 2N</p> <ul style="list-style-type: none"> - Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(OPTION) - Solid and compact design - Bolts on visual position indicator (Re-adjustment available upon required direction) - Dual cable entries : 2 x 1/2 NPT(Standard) M20, PG13.5, PF1/2", PT1/2".(Option) - Terminal Strips : 8 points(0.08-2. 5mm²) - Captive cover bolts - Easy mounting bracket NAMUR standard stainless steel shaft and bracket.
 <p>(IP67,IP68)</p>	<p>MODEL : APL - 3N</p> <ul style="list-style-type: none"> - Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(OPTION) - Solid and Flexible design & various options available • 3~4 additional switches • 8~16 points Terminal Strips - Bolts on visual position indicator - Dual cable entries : 2 x 1/2 NPT(Standard) M20, PG13.5, PF1/2", PT1/2".(Option) - 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.
 <p>(E EX d IIB T 6)</p>	<p>MODEL : APL - 4N</p> <ul style="list-style-type: none"> - Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68(OPTION) Explosionproof : E EX d IIB T6 - Solid and Durable design & various options available • 3~4 additional switches • 8~20 points Terminal Strips • various options switches - Bolts on visual position indicator - Cable entries : 2 x 3/4 NPT(Standard) M20, M25, PF3/4", PT3/4" 4Cable entries(OPTION) - 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.
 <p>(E EX d IIC T 6)</p>	<ul style="list-style-type: none"> - Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68(OPTION) Explosionproof : E EX d IIC T6, E EX ia IIC T6, E EX d IIB T6 - Solid and compact design - Shaft holder built in the cover(Dual shaft) Easy to set the visual position indicator. Unique design to put the visual indicator on the threaded joint type cover. - Bolts on visual position indicator - Dual Cable entries : 2 x 3/4 PF(Standard) M20, M25, NPT3/4", PT3/4".(Option) - Terminal Strips : 8 points(0.08-2. 5mm²) - Captive cover bolts & Spring loaded cover bolts No worry to loose bolts while cover open & Unique design to hold bolts inside cover - Easy mounting bracket NAMUR standard stainless steel shaft and stainless steel or steel bracket.

STRUCTURE

APL-2N & APL-3N Weatherproof Design

Enclosure

Solid and Compact design
aluminium die-casting
IP67



APL-210N

Painting

Powder coating



Housing Body

Aluminium die-casting

Quick-Set Cam

Easy to set, Splined cam
Open-Yellow , Close-Red



APL-310N

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

Captive Bolts

Stainless steel

Terminal Strip

Standard 8 points

Earth lug

APL-4N & APL-5N Explosionproof Design

Enclosure

Solid and Durable design
aluminium die-casting
IP67 & Explosionproof design



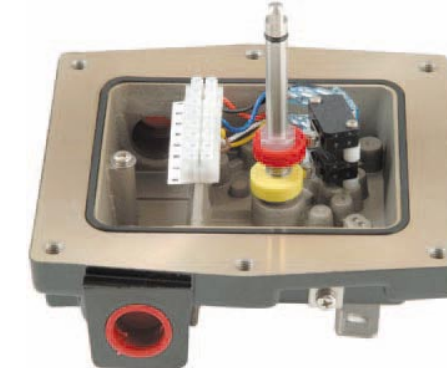
APL-410N

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



APL-510N



Visual Position Indicator

Poly-carbonated
Open-Yellow , Close-Red

Name Plate

Standard 8 points

Housing Cover

Aluminium die-casting

Captive Bolts

Stainless steel

Terminal Strip

Standard 8 points

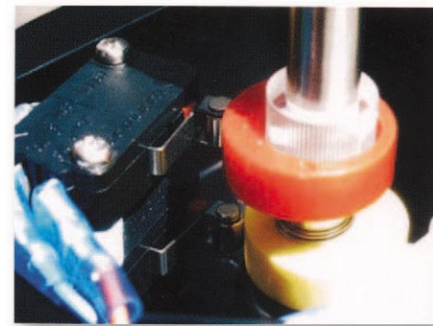
Earth lug

Multi-Ports

Main.2Ports
APL-4N:Max.4Ports

SWITCH SPECIFICATION

- Mechanical switch -

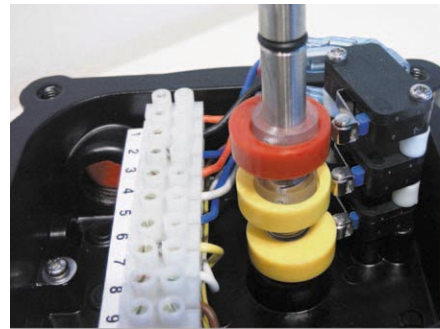


Standard switches

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)

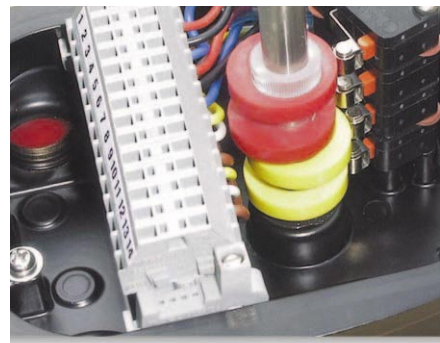
Option switches

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

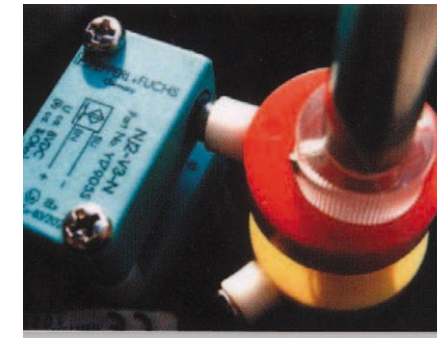


DPDT switches

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

SWITCH SPECIFICATION

- Proximity sensor -

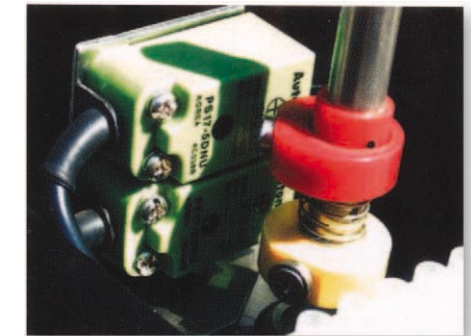


NJ2-V3-N P&F

(intrinsically safe)
 Inductive proximity sensor
 Voltage range : 8V DC
 Operating distance : 2mm

NPS17-5DN

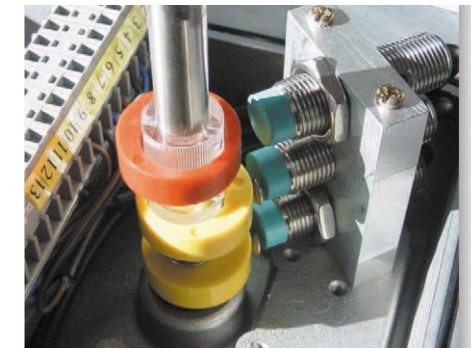
Inductive proximity sensor
 Voltage range : 10~30V DC
 AC110V or 220V
 Operating distance : 5mm
 Except APL 2N series



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 APL2, 3, 5N series



- Reed proximity sensor -

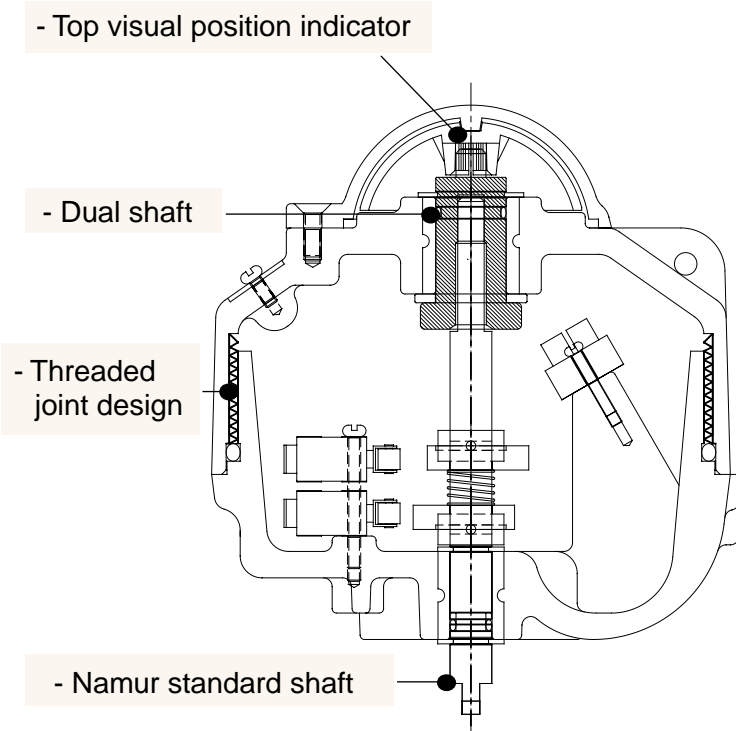


2SPST switches

Contact Form : NO. NC
 Contact Rating : 10W max
 Switching Voltage : 200VDC max
 Switching Current : 1A max
 Breakdown Voltage : 250VDC min
 Contact Resistance(initial) : 0.3 Ohm max
 Electrical Life : 10⁷(6VDC, 10mA)

STRUCTURE

APL-5N Series



Captive spring - loaded cover bolts

cover bolts are specially designed to prevent losing it during maintenance or installation. (APL 5N Series)



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

Housing cover&body	Aluminium die casting	O-ring	NBR
Shaft	Stainless steel	Bushing	Bronze
Indicator cover	Polycarbonate	E-ring(shaft)	Stainless steel
Cam	Polycarbonate	Earth lug	Stainless steel
Spring	Stainless steel	Indicator	ABS/Polycarbonate
Housing cover bolt	Stainless steel	Bracket	Stainless steel



(APL3,4N SERIES)

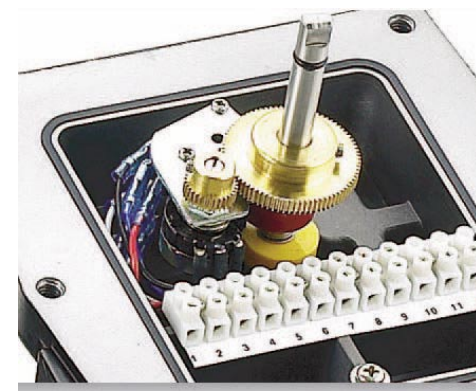
Flow port Monitor



L port, T port 3-way valve

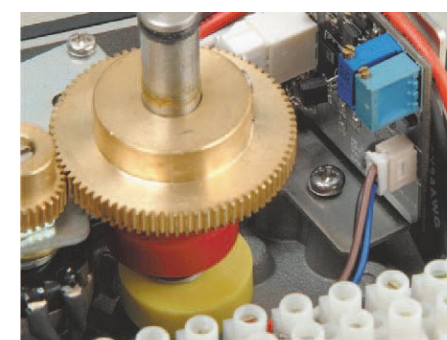
ELECTRICAL CONNECTION

- Position transmitter & potentiometer -



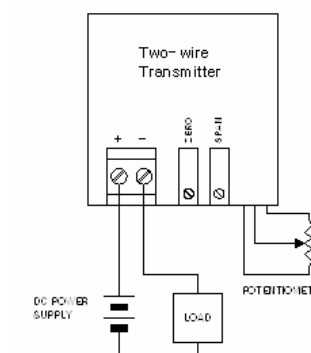
Potentiometer

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



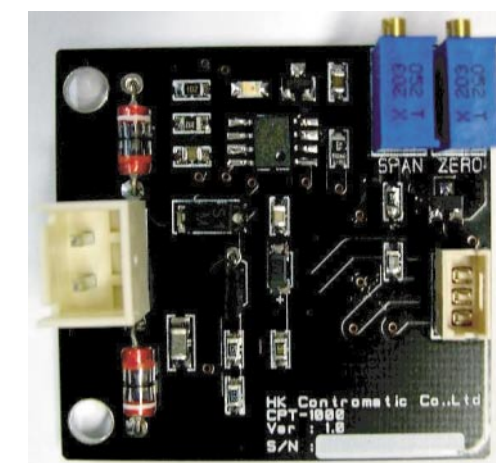
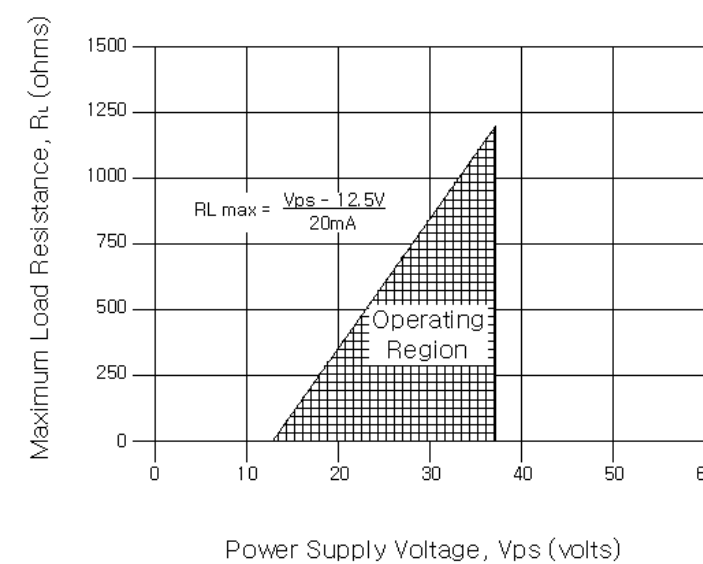
Position Transmitter

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



Wiring

Power Supply Requirements

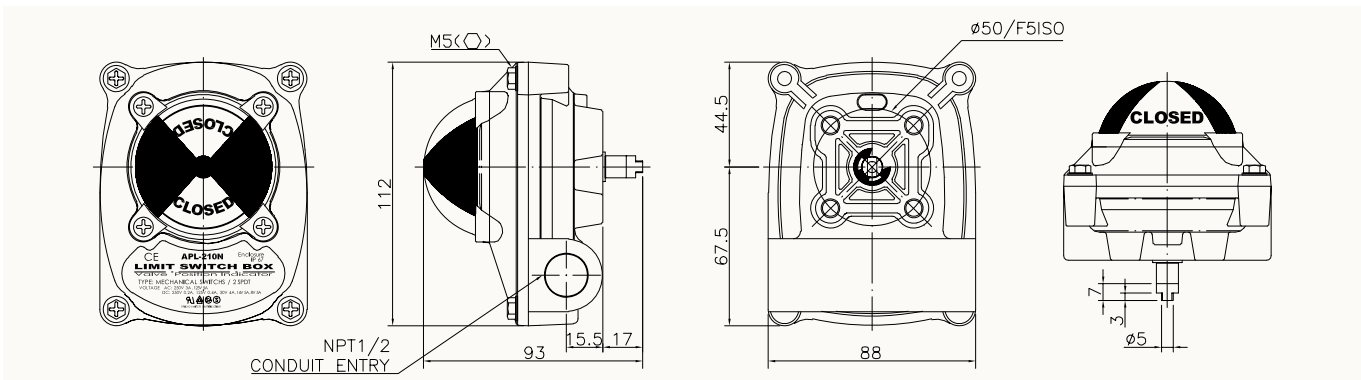


CPT Card

DIMENSION

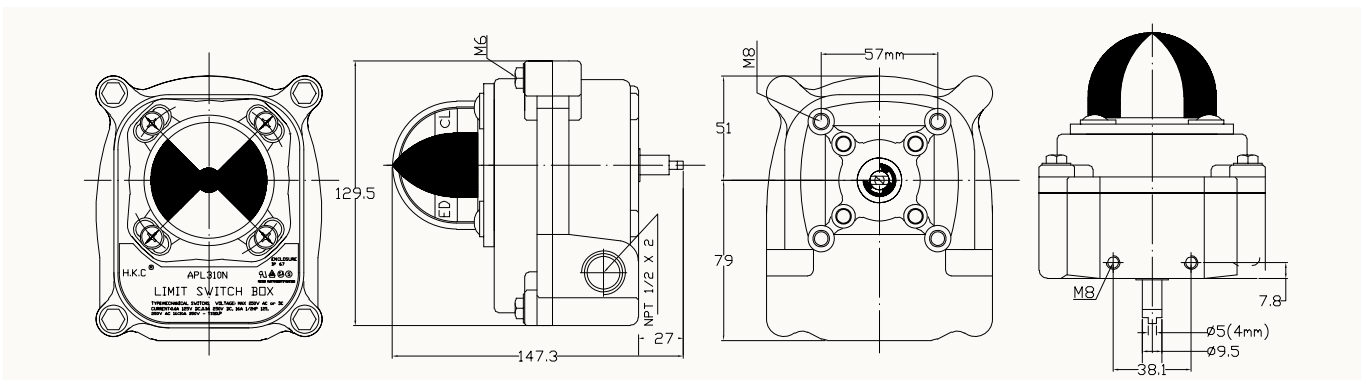
UNIT : mm

APL 2N SERIES



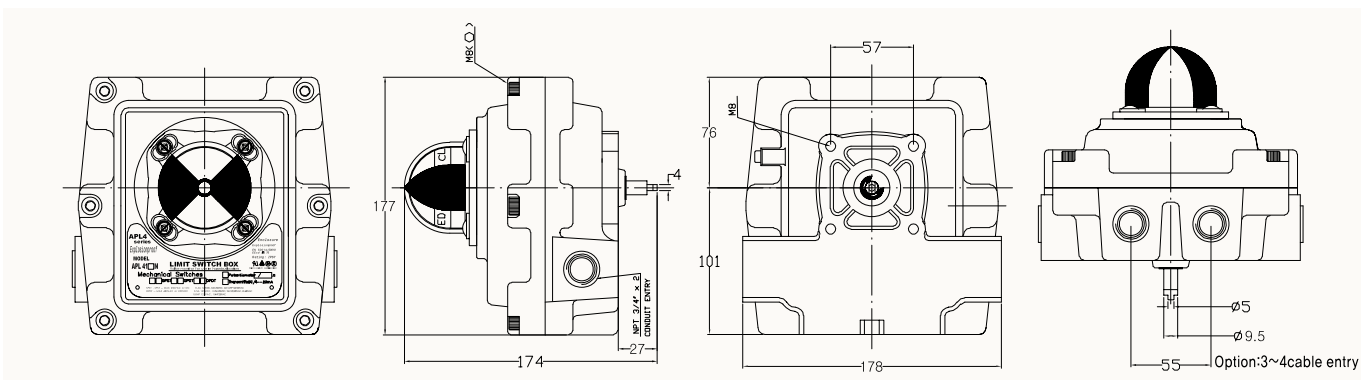
STANDARD NAMUR SHAFT

APL 3N SERIES



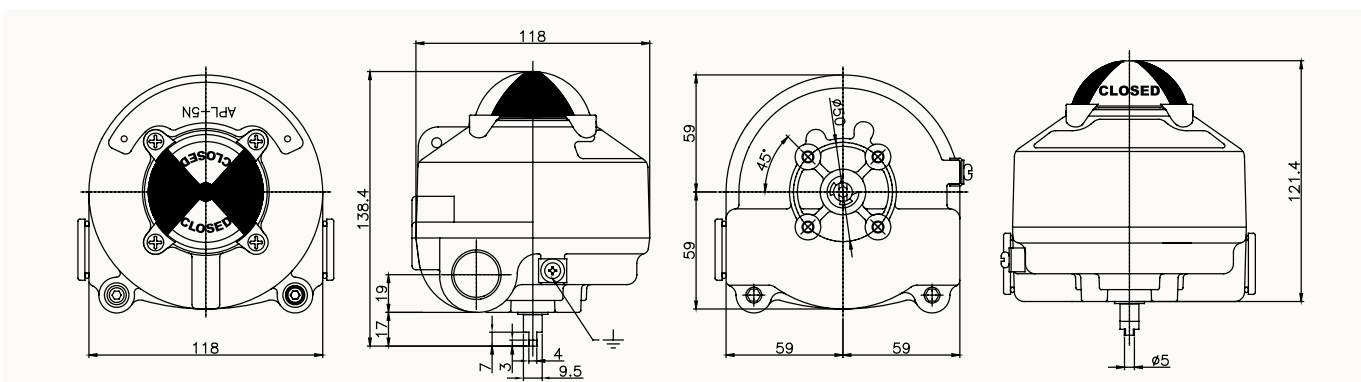
STANDARD NAMUR SHAFT

APL 4N SERIES



STANDARD NAMUR SHAFT

APL 5N SERIES



STANDARD NAMUR SHAFT

BRACKET NAMED STANDARD

Shape			
Size	25 × 50 H:20 30 × 80 H:20 30 × 80(130) H:30(50)	30 × 80 H:20 30 × 80 H:30	30 × 130 H:30 30 × 130 H:50
Model	MBP-50 MBP-100 MBP-200 MBP-300 MBP-400	MB-P-O-1C MB-P-O-1S MB-P-O-2C MB-P-O-2S	MB-P-O-3C MB-P-O-3S MB-P-O-4C MB-P-O-4S

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

ORDERING INFORMATION

APL - 3 10 N

Enclosure

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

Switch type

Bolt on
Position Indicator

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