



Valve Position Monitor

APL-2 3 4 5N Series

USER'S MANUAL



ZHEJIANG ZHITAI SELF-CONTROL VALVE CO., LTD.

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

	MODEL APL - 2N - Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(Optional) - 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 NAMUR standard stainless steel shaft and bracket.
	MODEL APL - 3N - Enclosure : Weatherproof IP67/NEMA4&4X (Standard) IP68(Optional) - 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 NAMUR standard stainless steel shaft and bracket.
	MODEL APL - 4N - Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68(Optional) Explosionproof : E Ex d IIB T6(Standard) E Ex ia IIB T6(Optional) - 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(Optional) - Terminal Strips : 8 points(0.08-2.5mm²) - Captive cover bolts - Easy mounting NAMUR standard stainless steel shaft and bracket
	MODEL APL - 5N NEW - Enclosure : Weatherproof IP67/NEMA4,4X,7,9 (Standard) IP68 (Option) Explosionproof : E Ex d IIC T6(Standard) E Ex ia IIC T6(Optional) - 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 - Easy mounting NAMUR standard stainless steel shaft and bracket. - Stainless steel (316) housing as option.

FEATURES

- Solid and flexible design
Aluminium die-casting housing and powder coating.
Stainless steel (316) housing. (APL-5N)
- 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 NPT 1/2"	Two NPT 1/2"	Two NPT 3/4"	Two NPT 3/4"
Ambient temperature	-20°C ~ 80°C	-20°C ~ 80°C	-20°C ~ 80°C	-20°C ~ 80°C
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 joint) closed:red open:yellow	0 ~ 90° (90° turn free joint) closed:red open:yellow	0 ~ 90° (90° turn free joint) closed:red open:yellow	0 ~ 90° (90° turn free joint) closed: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 Explosionproof E EX ia IIB T6	Weatherproof IP68 Explosionproof 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" M20, M25
Option temperature	-	-40°C ~ 80°C -20°C ~ 150°C	-	-
Terminal strips	-	16 points (0.08-2.5mm ²)	20 points (0.08-2.5mm ²)	-
Position indicator	three position closed:red open:Green	three position closed:red open:Green	three position closed:red open:Green	three position closed: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

STRUCTURE



APL-310N

Enclosure

Solid and flexible 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

Various Switches

Mechanical
Proximity(P & F)
Reed & Pneumatic

Mounting Bracket



O-rings

Shaft

Stainless steel
NAMUR



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

Multi-Ports

Main.2, Max.4Ports

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

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

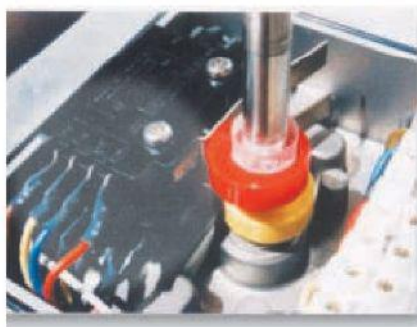
4SPDT switches

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 -

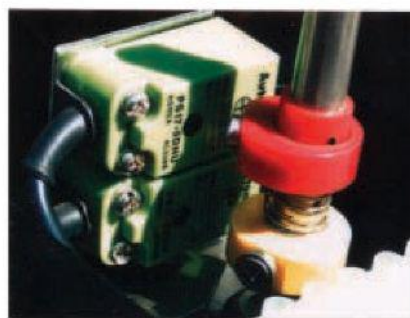


NJ2-V3-N P&F

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

PSN17-5DNU

Inductive proximity sensor
Voltage range : 10~30V DC
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 -



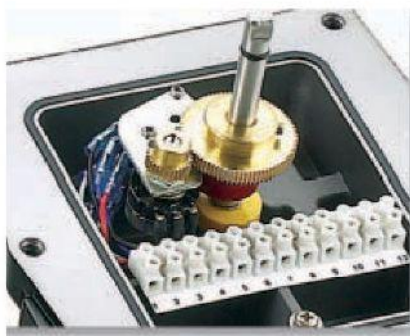
2SPST switches

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 : 10^7 (6VDC, 10mA)

ELECTRICAL CONNECTION

- Position transmitter & potentiometer -

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



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



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

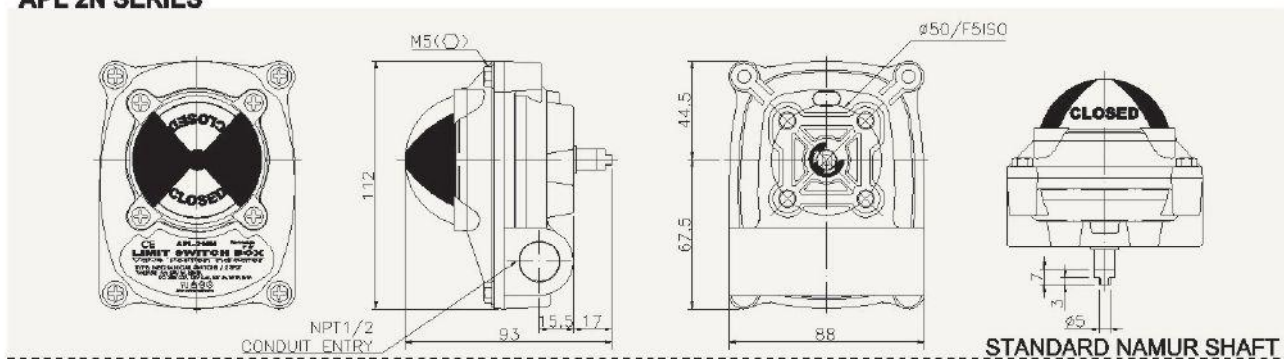
Flow port Monitor
 L port, T port
 3-way valve



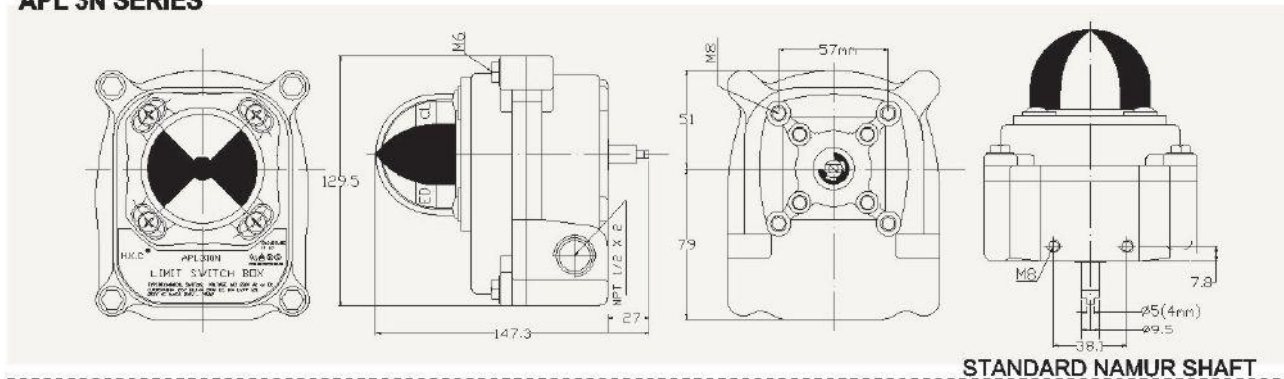
DIMENSION

UNIT : mm

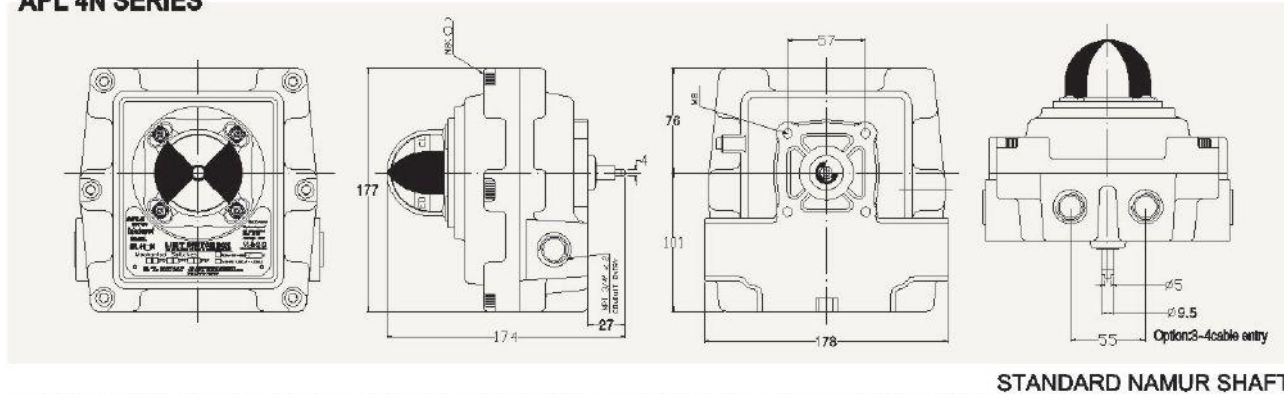
APL 2N SERIES



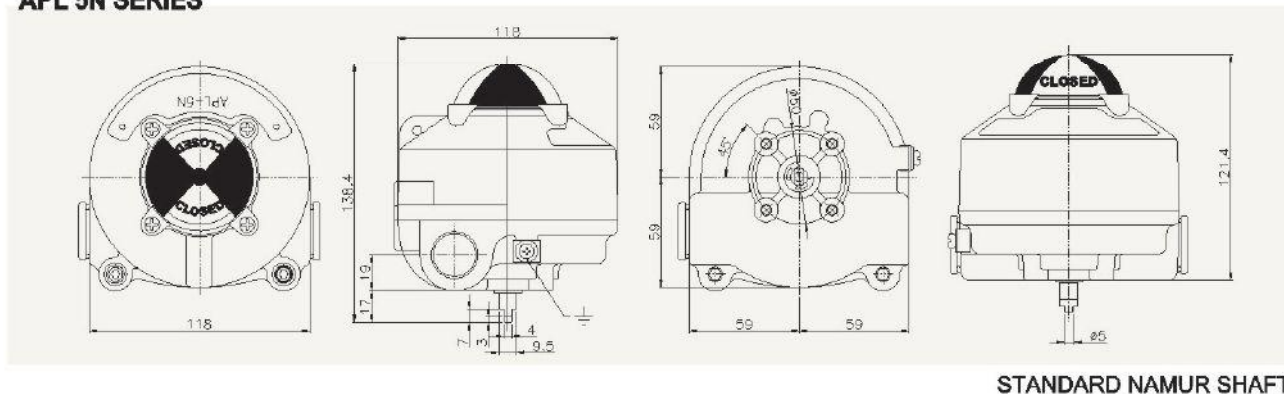
APL 3N SERIES



APL 4N SERIES



APL 5N SERIES



BRACKET NAMUR 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. PSN17-5DNU	
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)		



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