

**LIMIT SWITCH BOX
MODEL - APL**

FEATURES AND BENEFITS

- Enclosure -Solid 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 4 ports



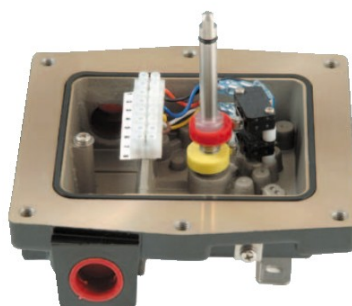
MATERIAL

COMPONENT	MATERIAL
Housing Cover & Body	Aluminium Die-Casting
Shaft	Stainless Steel
Indicator Cover	Polycarbonate
Cam	Polycarbonate
Spring	Stainless Steel
Housing Cover Bolt	Stainless Steel
O-Ring	NBR
Bushing	Bronze
E-Ring (Shaft)	Stainless Steel
Earth Lug	Stainless Steel
Indicator	ABS/Polycarbonate
Bracket	Stainless Steel

APL-210N



APL-410N



APL-510N



LIMIT SWITCH BOX

MODEL - APL

MODEL: APL - 2N SERIES

- Enclosure: Weatherproof IP67/ NEMA4&4X
- Solid and compact design
- Bolts on visual position indicator
- Dual cable entries: 2 x ½" NPT
- Terminal strips: 8 points (0.08-2.5mm²)
- Captive cover bolts
- Easy mounting bracket NAMUR standard
- Stainless Steel shaft and bracket



MODEL: APL - 3N SERIES

- Enclosure: Weatherproof IP67/ NEMA4&4X
- Solid and attractively designed with various options available:
 - 3 - 4 additional switches
 - 8 - 16 Points Terminal Strips
- Bolts on visual position indicator
- Dual cable entries: 2 x ½" NPT
- Terminal strips: 8 points (0.08-2.5mm²)
- Captive cover bolts
- Easy mounting bracket NAMUR standard



MODEL: APL - 4N SERIES

- Enclosure: Weatherproof IP67/ NEMA4&4X, 7, 9
- Explosion proof: E EX d IIB T6
- Solid and attractively designed with various options available:
 - 3 - 4 additional switches
 - 8 - 20 Points Terminal Strips
 - Various options switches
- Bolts on visual position indicator
- Dual cable entries: 2 x ¾" NPT
- Terminal strips: 8 points (0.08-2.5mm²)
- Captive cover bolts
- Easy mounting bracket NAMUR standard



MODEL: APL - 5N SERIES

- Enclosure: Weatherproof IP67/ NEMA4&4X, 7, 9
- Explosion proof: 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 visual indicator.
- Unique design to put the visual indicator on the threaded joint type cover.
- Bolts on visual position indicator
- Dual cable entries: 2 x ¾" PF
- Terminal strips: 8 points (0.08-2.5mm²)
- Captive cover bolts & spring loaded cover bolts
- Easy mounting bracket NAMUR standard
- Stainless Steel shaft and bracket



LIMIT SWITCH BOX MODEL - APL



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 adjustment after initial setting and set without tool)
- Dual cable entries
- Captive cover bolts no loose bolts when cover is open, spring loaded cover bolts (APL-5N)
- Easy mounting bracket NAMUR standard stainless steel shaft & bracket



STANDARD SPECIFICATION

SPECIFICATION	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 Explosion proof E EX d IIB T6	Weatherproof IP67/ NEMA4&4X Explosion proof E EX d IIC T6
CABLE ENTRIES	Two NPT ½"	Two NPT ½"	Two NPT ¾"	Two NPT ¾"
AMBIENT TEMP	-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 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 x 2 Proximity sensor x 2	Mechanical switch x 2 Proximity sensor x 2	Mechanical switch x 2 Proximity sensor x 2	Mechanical switch x 2 Proximity sensor x 2
PAINTING	Chromate Polyester powder coating (black)	Chromate Polyester powder coating (black)	Chromate Polyester powder coating (black)	Chromate Polyester powder coating (black)

OPTION SPECIFICATION

SPECIFICATION	APL-2N SERIES	APL-3N SERIES	APL-4N SERIES	APL-5N SERIES
ENCLOSURE	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68	Weatherproof IP68 Explosion proof E EX d IIB T6 E EX d IIC T6
CABLE ENTRIES	Two PF ½", PT ½", M20,	Two PF ½", PT ½", M20	Four PF ¾", PT ¾", M20, M25	Two NPT ¾", PT ¾"
AMBIENT TEMP	—	-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 close: red & open: green	Three close: red & open: green	Three close: red & open: green	Three close: red & open: green
SWITCHES	—	Mechanical switch x 4 Proximity sensor x 4	Mechanical switch x 4 Proximity sensor x 4	Mechanical switch x 4 Proximity sensor x 4
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



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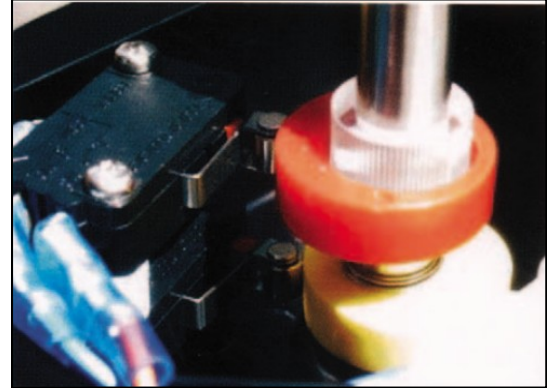
pedidos@suministrosrado.com www.suministrosrado.com

LIMIT SWITCH BOX MODEL - APL

SWITCH SPECIFICATION - MECHANICAL SWITCH

STANDARD SWITCHES

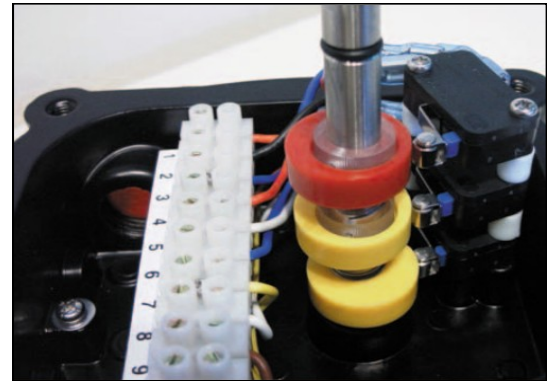
- 2SPDT Switches
- Contact Arrangement
 - 250VAC/16A
 - 250VDC/0.3A
 - 125VDC/0.6A
 - 30VDC/10A
- Operating Frequency
 - 600 Operating per minute max (Mechanically)
 - 60 Operating per minute max (Electrical)



OPTION SWITCHES

- 3SPDT Switches
- Contact Arrangement
 - 250VAC/16A
 - 250VDC/0.3A
 - 125VDC/0.6A
 - 30VDC/10A)

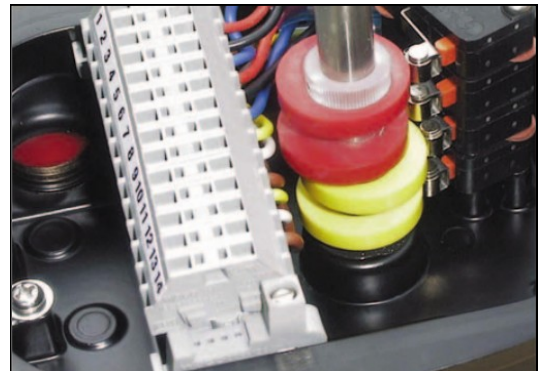
Except APL 2N Series



OPTION SWITCHES

- 4SPDT Switches
- Contact Arrangement
 - 250VAC/16A
 - 250VDC/0.3A
 - 125VDC/0.6A
 - 30VDC/10A)

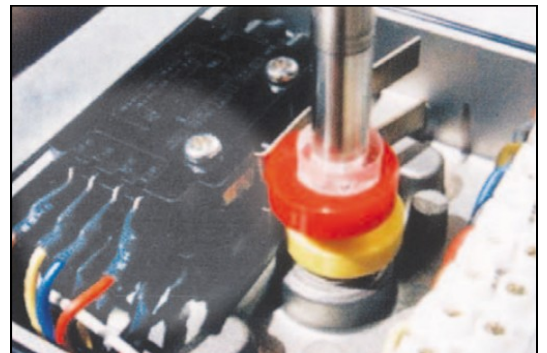
Except APL 2N Series



DPDT SWITCHES

- Contact Arrangement
 - 20amp 125/250 VAC
 - 1 HP 125 VAC
 - 2 HP 250 VAC
 - 0.5 amp 250VDC

Except APL 2N, 3N, 5N Series



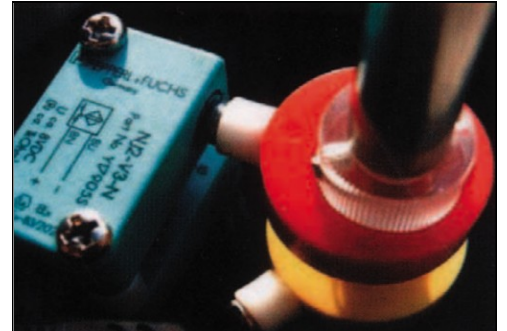
LIMIT SWITCH BOX

MODEL - APL

SWITCH SPECIFICATION - PROXIMITY SENSOR

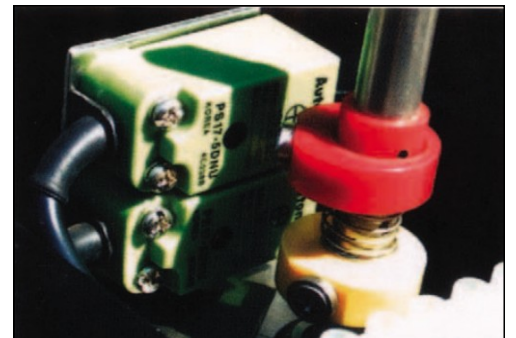
NJ2-V3-N P&F

- Intrinsically Safe
- Inductive Proximity Sensor
- Voltage Range - 8V DC
- Operating Distance



NPS14-5DN

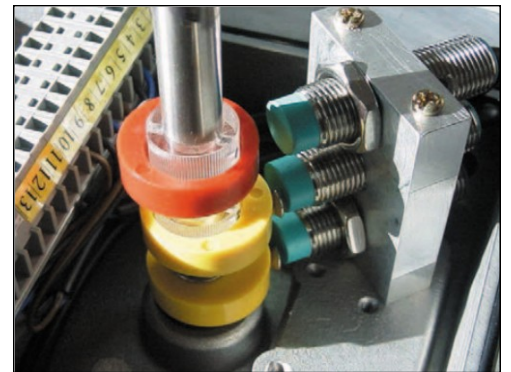
- Inductive Proximity Sensors
 - Voltage Range: 10-30V DC, AC110V OR 220V
 - Operating Distance 5MM
- Except APL 2N Series



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 2, 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
- Electric Life: 10⁷ (6VDC, 10mA)

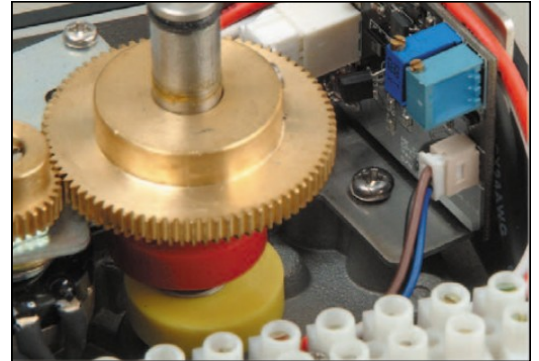


LIMIT SWITCH BOX MODEL - APL

ELECTRICAL CONNECTION—POSITION TRANSMITTER & POTENTIOMETER

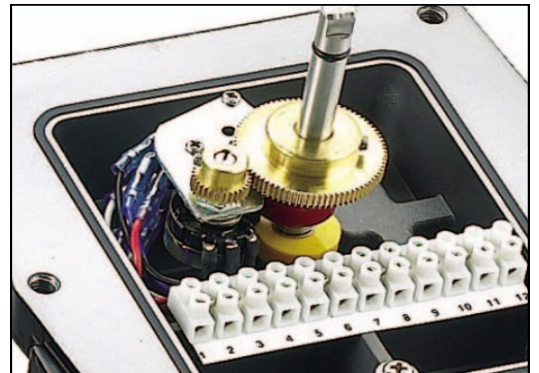
POSITION TRANSMITTER

- Power Supply Range: 12.5 to 37 VDC (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 and Chemical Resistant
- Transparent Carbonate
- Excellent Corrosion Protection
- High Visibility and Reliability



FLOW PORT MONITOR

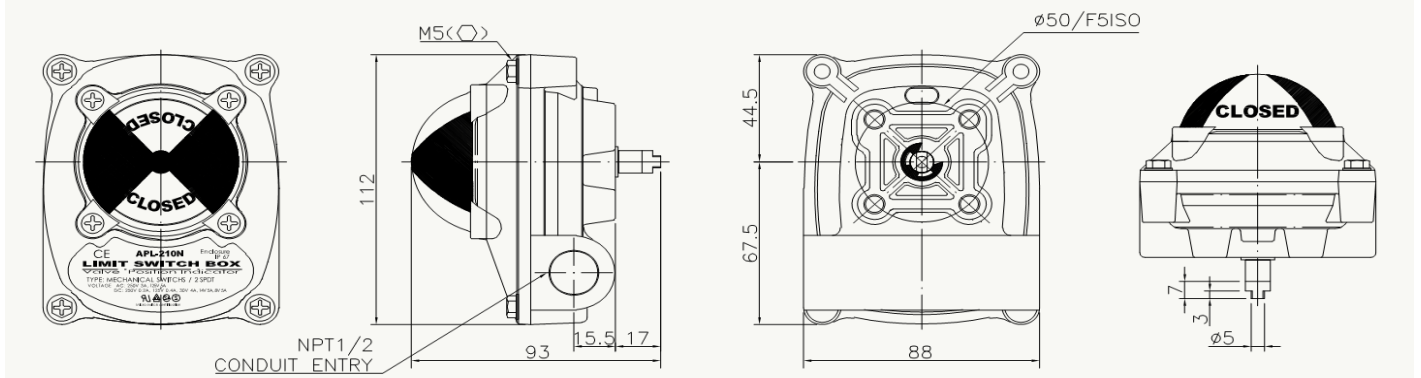
- L Port
- T Port
- 3-Way Valves



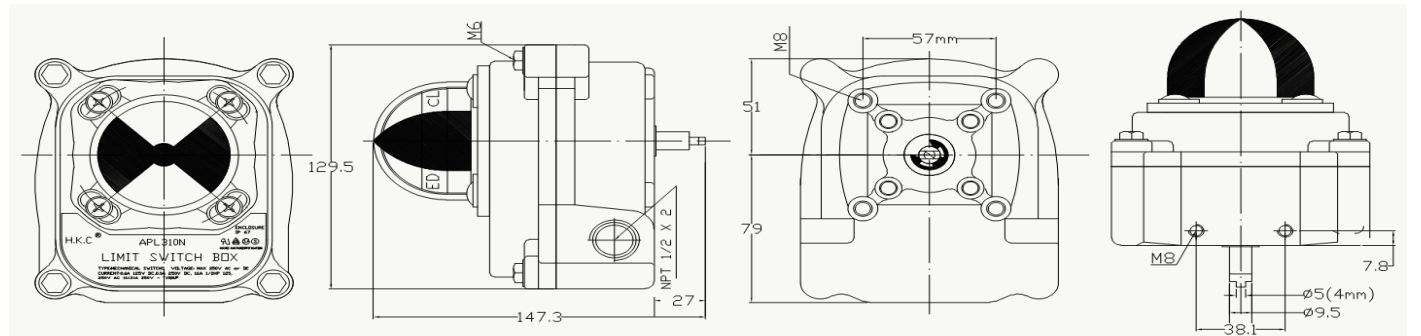
LIMIT SWITCH BOX MODEL - APL

DIMENSIONS [MM]

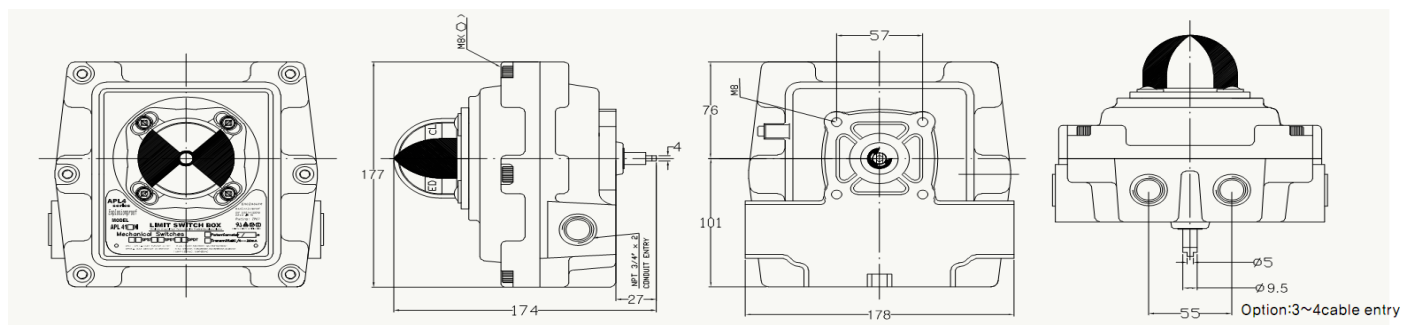
APL 2N SERIES - STANDARD NAMUR SHAFT



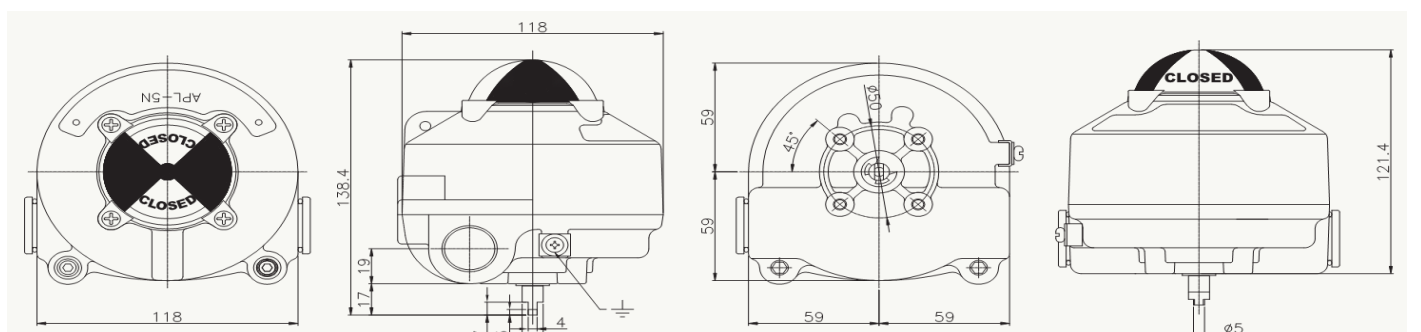
APL 3N SERIES - STANDARD NAMUR SHAFT



APL 4N SERIES - STANDARD NAMUR SHAFT



APL 5N SERIES - STANDARD NAMUR SHAFT



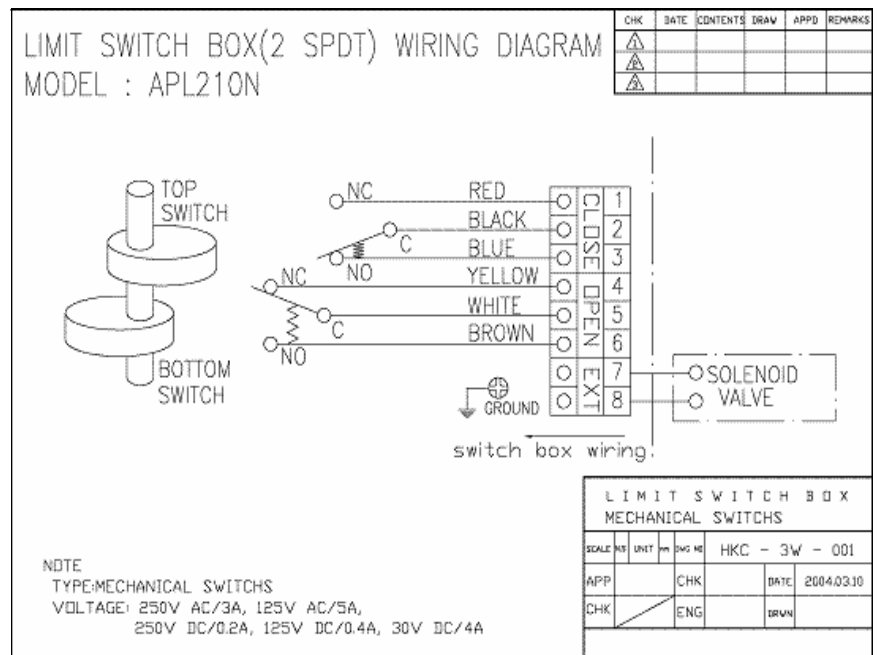
LIMIT SWITCH BOX MODEL - APL

ADJUSTMENTS

Challenger limit switch boxes are factory set, and should not require any adjustment, however if final adjustment in the field is required the following procedures must be followed.

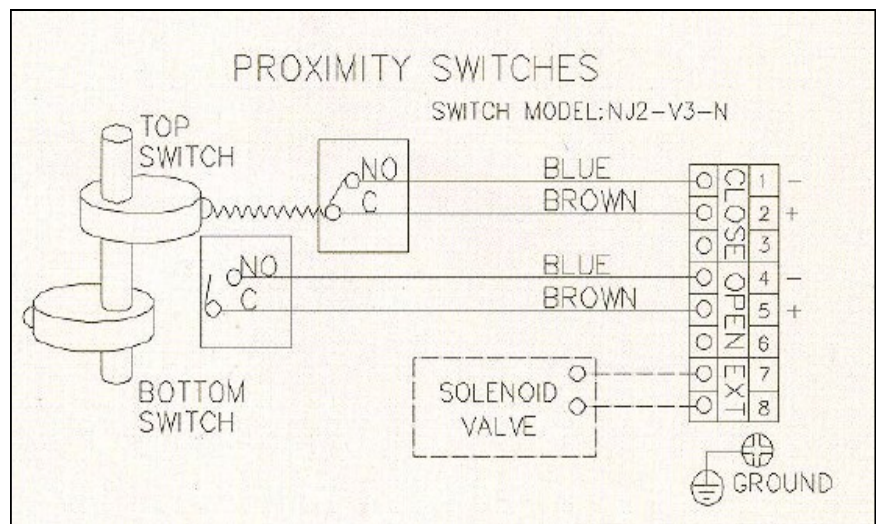
Adjustment Mechanical Switch

1. Isolate Electrical Supply
2. Unscrew captive bolts
3. Remove the top cover, being careful not to damage the 'O' ring seal
4. You will find two coloured quick set cams (1) & (2), one cam for each limit switch
5. The cams do not require any tools for final adjustment, simply gently press down and rotate each spring loaded cam, against the mechanical switch lever until the desired contact is made and release, the cam is now set in the desired position.



Adjustment Proximity Sensor

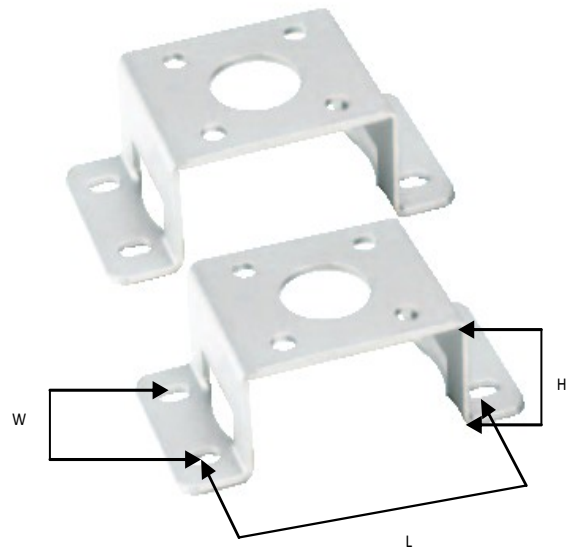
1. Isolate Electrical Supply
2. Unscrew captive bolts
3. Remove the top cover, being careful not to damage the 'O' ring seal.
4. You will find two coloured quick set cams (1) & (2), one cam for each sensor.
5. The proximity cams have a target indicators fitted, one for each cam, simply press down and rotate each spring loaded cam to the target marked on the proximity sensor and release the cam.



LIMIT SWITCH BOX MODEL - APL

BRACKET NAMUR STANDARD

MODEL	L (mm)	W (mm)	H (mm)
MBP-50	50	25	30
MBP-100	80	30	30
MBP-200	80	30	40
MBP-300	130	30	40



ORDERING INFORMATION

ENCLOSURE

2. Weather Proof
3. Weather Proof (Large Enclosure)
5. Explosion Proof (Ex d IIC T6)

ENCLOSURE

SWITCH TYPE

APL - 2 10 N

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-SPDT	-	-
15 2-SPDT + Potentiometer	-	-
16 2-SPDT + Signal Unit (4-20mA)	-	-