ELECTRO-PNEUMATIC POSITIONER

EPL & EPR Series

EPL & EPR Series are the rugged control devices which stand up to harsh environments and engineered to meet the highest and most demanding control performance that the process industries of today require

FEATURES

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included
- Certified for ATEX Ⓔx Eex md ⅡB T5 (05 ATEX 1076X) by NEMKO in conformance with EN 50014:1997, EN 50018:2000 and EN 50028:1987
- Certified for EMC (K1046 / E04) in conformance with EN 61000-6-2:2001 and EN 61000-6-4:2001 by RWTUV
- Certified for Ex md ⅡB T6 (99-1075-Q1), Ex md ⅡC T6 (2000-1057-Q1), and Ex ia ⅡB T6 (2000-1056-Q1) by KOSHA

EPL (Linear Type)

OPTIONS AVAILABLE

- Position transmitter (4...20mA output signal)
- Two limit switches (open and close)

EPR (Rotary Type)

SPECIFICATIONS

	EPL		EPR	
	Linear Type (lever feedback)		Rotary Type (cam feedback)	
	Single	Double	Single	Double
Input Signal	4...20mA @ 24V DC (Note.1)			
Input Resistance	235 ± 15Ω			
Supply Air Pressure	Max. 7.0bar (100psi)			
Standard Stroke	10 ~ 80㎜ (Note.2)		60 ~ 100 ¡ (Note.2)	
Pneumatic Connections	Rc 1/4 or NPT 1/4			
Electrical Connections	G 1/2 or NPT 1/2			
Protection Class	Ex md ⅡB T6, Ex md ⅡC(H_2)T6, IP66, Ex ia ⅡB T6 Eex md ⅡB T5 for ATEX Ⓔx			
Ambient Temperature	-20 ~ 70℃			
Pressure Gauge	Stainless Steel			
Output Characteristics	Linear			
Linearity	Within ± 1.0% F.S.		Within ± 1.5% F.S.	
Sensitivity	Within 0.2% F.S.		Within 0.5% F.S.	
Hysteresis	Within 0.5% F.S.		Within 1.0% F.S.	
Repeatability	Within ± 0.5% F.S.			
Air Consumption	5 LPM (Sup. 1.4 kgf/㎠)			
Flow Capacity	80 LPM (Sup. 1.4 kgf/㎠)			
Body Material	Aluminum Diecast			
Weight	2.9kg (with a terminal box)			

Note : 1) 1/2 spilt range can be adjusted
2) Feedback lever is available for stroke 80~150mm (EPL)
3) Stroke can be adjusted to 0°~60°or 0°~100° (EPR)

HOW TO ORDER

EP	Actuator Operation	—	Protection Class	Feedback Lever	Pressure Gauge (SUP.OUT)	Pilot Valve Orifice	Position Feedback	Mounting Bracket

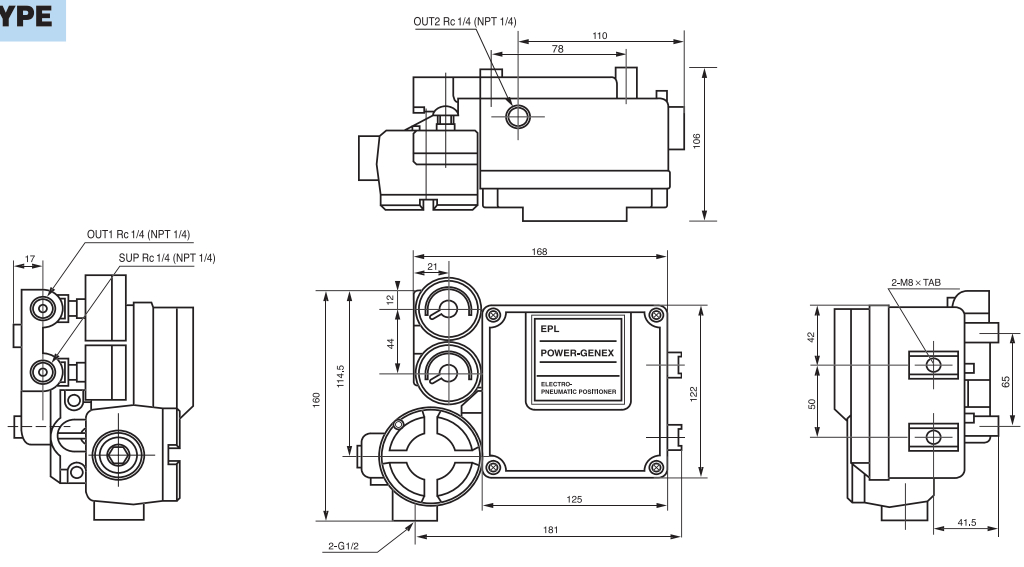
Description	Code
Actuator Operation :	L : Linear Type R : Rotary Type
Protection Class :	F : Flameproof (Ex md ⅡB T6 / Ex md ⅡC T6) I : Intrinsic Safety (Exia ⅡB T6) W : Weatherproof to IP66 A : Flameproof (Eex md ⅡB T5) for ATEX Ⓔx
Feedback Lever : • Linear Type • Rotary Type	 A : Stroke (10 ~ 80mm) B : Stroke (70 ~ 150mm) A : Fork Lever M6 × 40L B : Fork Lever other size on request N : Namur Shaft (direct mounting)
Pressure Gauge :	1 : 6bar (90psi) 2 : 10bar (150psi)

Description	Code
Pilot Valve Orifice :	S : Standard (actuator volume over 180㎤) M : Small Orifice (ø 1.0 or ø 0.7) (actuator volume 90 ~ 180㎤)
Position Feedback : (only for weatherproof)	N : None O : Position Transmitter (4 ~ 20mA Output Signal) L : Two SPDT Limit Switches (only for EPR)
Mounting Bracket :	N : None L : DIN / IEC534 (for EPL) R : DIN VDI / VDE3845 (for EPR) F : DHCT Bracket 80 × 30

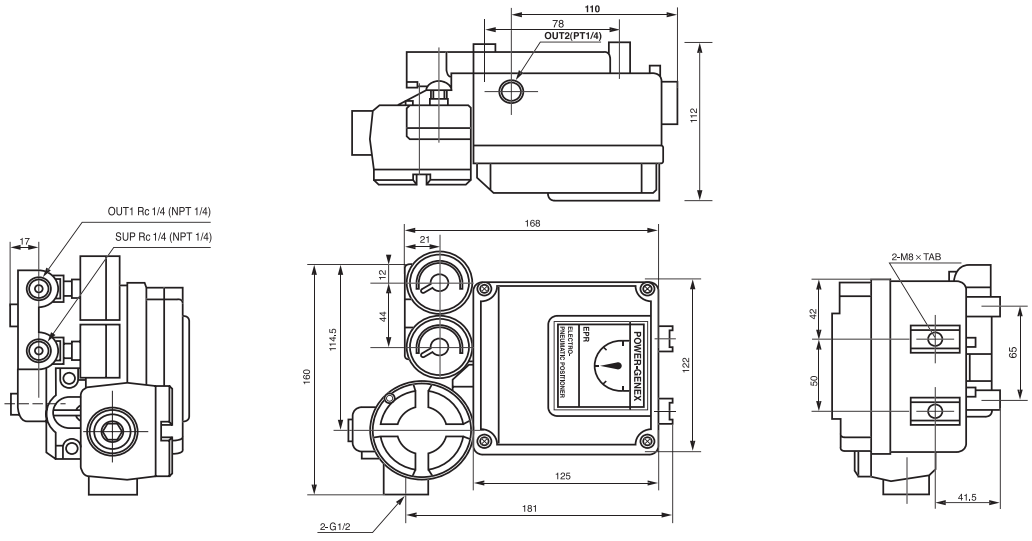
DIMENSIONS

unit : mm

EPL - LINEAR TYPE



EPR - ROTARY TYPE



PNEUMATIC-PNEUMATIC POSITIONER

PPL & PPR Series

PPL & PPR Series are the robust control devices that provide dependability in difficult envirinments

FEATURES

- Easy maintenance
- Precise calibration with simple SPAN and ZERO adjustments
- Simple conversion to direct acting or reverse acting
- 1/2 split range available
- Rugged aluminum housing with corrosion-resistant coating
- Vibration resistant design
- Stainless steel gauges standard
- Restricted pilot valve orifice kit for small actuators included

PPL (Linear Type)

PPR (Rotary Type)

SPECIFICATIONS

	PPL		PPR	
	Linear Type (lever feedback)		Rotary Type (cam feedback)	
	Single	Double	Single	Double
Input Signal	0.2 ~ 1.0bar (3 ~ 15psi) (Note.1)			
Supply Air Pressure	Max. 7.0bar (100psi)			
Standard Stroke	10 - 80mm (Note.2)		60 - 100 (Note.3)	
Pneumatic Connections	Rc 1/4 (NPT 1/4)			
Ambient Temperature	-20 - 70 ℃			
Pressure Gauge	Stainless Steel			
Output Characteristics	Linear			
Linearity	Within ± 1.0 % F.S		Within ± 1.5 % F.S	
Sensitivity	Within 0.2 % F.S		Within 0.5 % F.S	
Hysteresis	Within 0.5 % F.S		Within 1.0 % F.S	
Repeatability	Within ± 0.5 % F.S			
Air Consumption	5 LPM (Sup. 1.4bar)			
Flow Capacity	80 LPM (Sup. 1.4bar)			
Body Material	Aluminium Diecast			
Weight	2.1 kg			

Note : 1) 1/2 spilt range can be adjusted
2) Feedback lever is available for stroke 80~150mm (PPL)
3) Stroke can be adjusted to 0°~60°or 0°~100° (PPR)

HOW TO ORDER

PP	Actuator Operation	—	Feedback Lever	Pressure Gauge (SUP.OUT)	Pilot Valve Orifice	Mounting Bracket

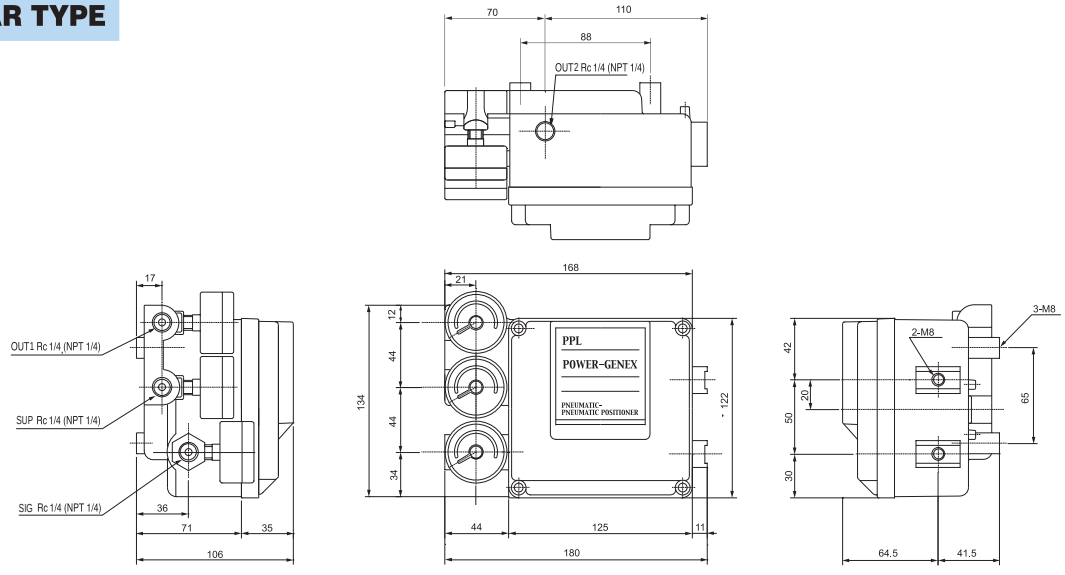
Description	Code
Actuator Operation :	L : Linear Type R : Rotary Type
Feedback Lever : • Linear Type • Rotary Type	 A : Stroke (10 ~ 80mm) B : Stroke (80 ~ 150mm) A : Fork Lever M6 × 40L B : Fork Lever other size on request N : Namur Shaft (direct mounting)
Pressure Gauge :	0 : 2bar (30psi) 1 : 6bar (90psi) 2 : 10bar (150psi)

Description	Code
Pilot Valve Orifice :	S : Standard (actuator volume over 180㎤) M : Small Orifice (ø 1.0 or ø 0.7) (actuator volume 90～180㎤)
Mounting Bracket :	N : None L : DIN / IEC534 (for PPL) R : DIN VDI / VDE3845 (for PPR) F : DHCT Bracket 80 x 30

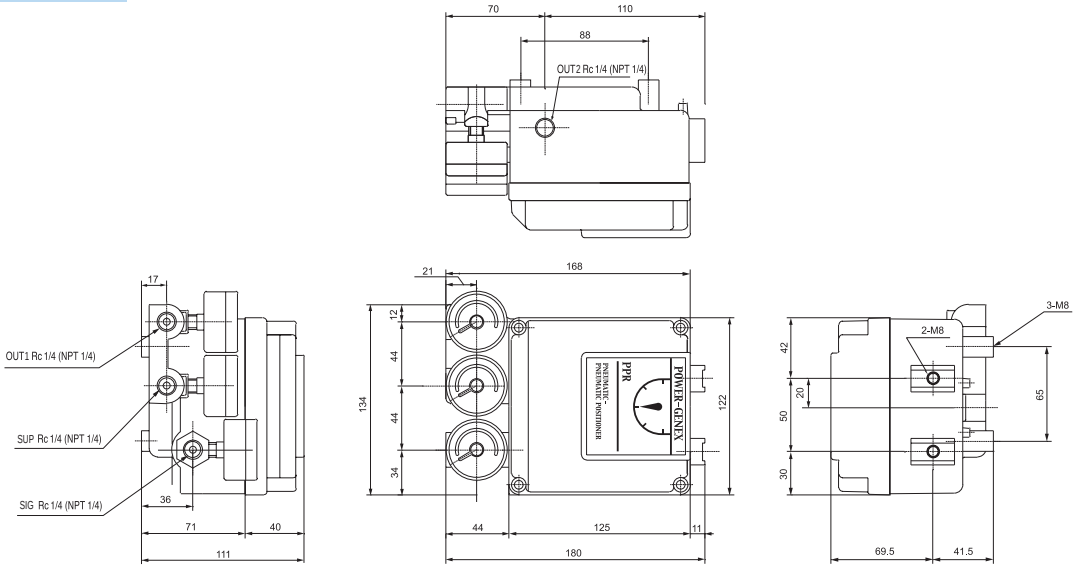
DIMENSIONS

unit : mm

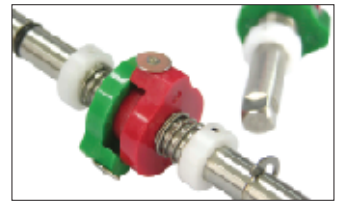
PPL - LINEAR TYPE



PPR - ROTARY TYPE



ITS Series *Position Monitoring Switch*



First in Automation...

Weather Proof
position monitoring switches

ITS series position monitoring switch boxes are primary a rotary position indication device designed to integrate valve and NAMUR rotary pneumatic actuator with a variety of mounting options, internal switches or sensors and configurations.

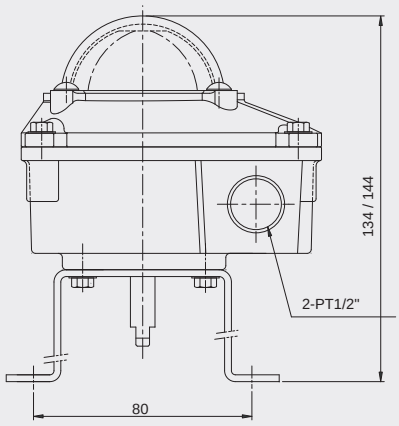
ITS 100 series

ITS 100 series are specially designed suitable for small size pneumatic actuator and valves to reduce installation space, but provides high performance by equipping a variety of switches and sensors.

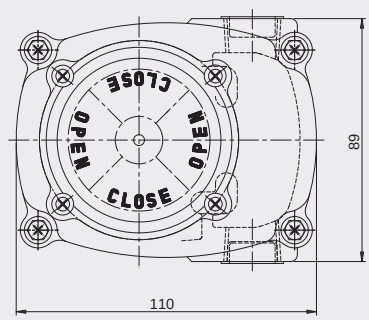
SPECIFICATION	Standard	Option
Enclosure	Weather proof IP67, O-ring sealed	IP 68
Outside coating	Epoxy-Polyester inside and outside against corrosion	Nylon Coating Special color Coating
Ambient temperature	-20°C~+80°C	Higher(~+100°C) and lower (-40°C~) temperature
Cable entries	2 - PT1/2", other standard threads	(NPT1/2", PF1/2", M20x1.5 and PG13.5)
Terminal block	8 nos of terminal strips (6 for switches, 2 for solenoid valve power)	
Position indicator	Dome type 0°~90°	Others(3 way L-port, T-port)
Mounting bracket	Stainless steel acc. to VDI/VDE3845, NAMUR, SS1, SS2 as standard	SS3, MT1 as option
Switches(Sensors)	2-SPDT mechanical switch(Form C) as standard	Proximity sensors(P & F, Autonics), Magnetic sensors, Others

DIMENSION

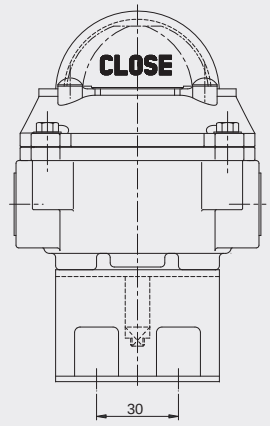
ITS 100 series



Front view



Top view



Side view

Explosion Proof
position monitoring switches

Rigid and compact design constructed from aluminum alloy dis-casting capable of operating even in arduous conditions

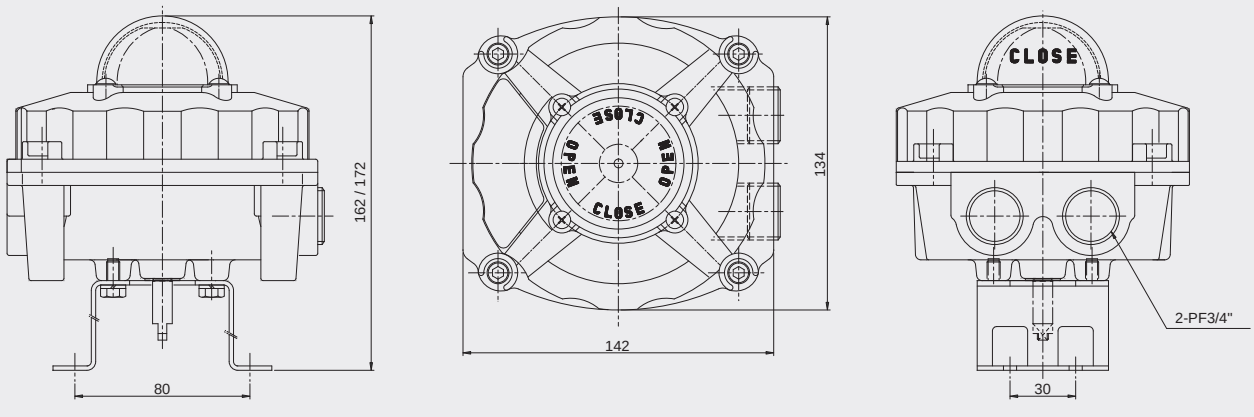
ITS 300 series

ITS 300 series are designed suitable for valve and actuators in hazardous area application, having compact but rubust construction conforms to EN50014 and 50018, also suitable in Zone 1 and 2, and ingress protection IP67
Standard aluminum housing provides reliable explosion proof performance.

SPECIFICATION	Standard	Option
Enclosure	Explosion proof Ex d IIC T6, IP67, O-ring sealed	IP 68
Outside coating	Epoxy-Polyester outside against corrosion	Nylon Coating Special color Coating
Ambient temperature	-20°C~+80°C	Higher(~100°C) and lower (-40°C~) temperature
Cable entries	2 - PF3/4", other standard threads	(NPT3/4", PF3/4", M25x1.5)
Terminal block	8 nos of terminal strips (6 for switches, 2 for solenoid valve power)	
Position indicator	Dome type 0°~90°	Others(3 way L-port, T-port)
Mounting bracket	Stainless steel acc. to VDI/VDE3845 NAMUR, SS1, SS2 as standard	SS3, MT1 as option
Switches(Sensors)	2-SPDT mechanical switch(Form C)	DPDT Switches Proximity sensors(P & F, Autonics) Magnetic sensors Position transmitter (output 0~1Kohm, 4-20mA DC)

DIMENSION

ITS 300 series



Front view | Top view | Side view

Special Material
position monitoring switches

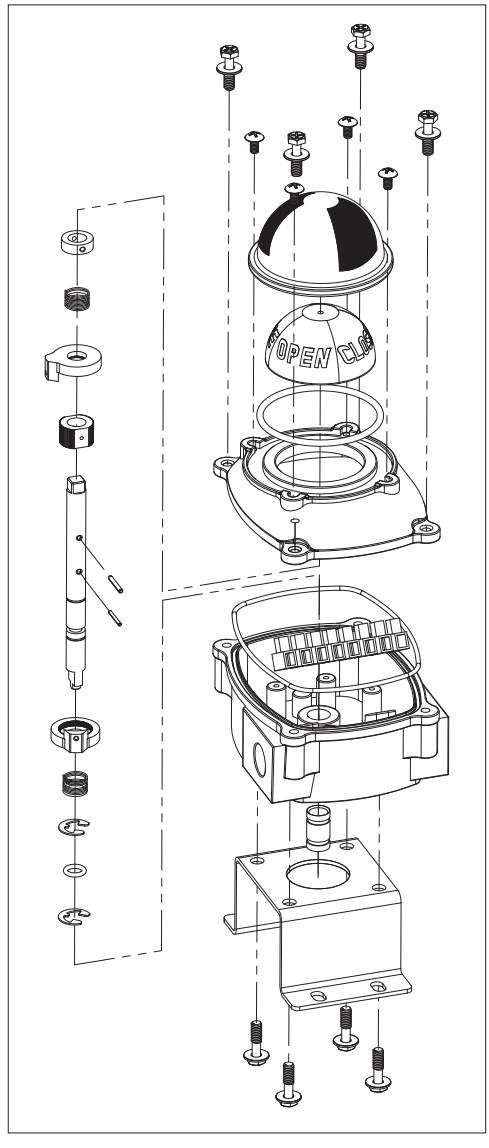
Dome position indicator constructed from high impact resistance poly-carbonate material which offers instant visual recognition of valve or actautor position up to 50 meters distance.

ITS 500 series

Speical stainless steel housing(316L or Duplex) provide very high protection performance against extremely corrosive environmental condition.
Suitable for off-shore application.
Other specification is same with ITS 300 series except for enclosure & coating.

CONSTRUCTION MATERIAL

Housing	Low cooper aluminum die-casting
Coating	Epoxy-Polyester inside/outside(100 series) Chromated /Epoxy-Polyester(300 series) No painting on stainless steel housing
Sealing	NBR O-rings on each interface (Dome indicator, Lower/Upper housing, Shaft)
Cams	Poly-carbonate
Bushings	Bronze
Shaft	AISI303 Stainless steel
Earth Lug	Stainless steel
Bolts	All in stainless steel
Mounting bracket	Plate steel(ST series) Stainless steel(SS series and MT1)

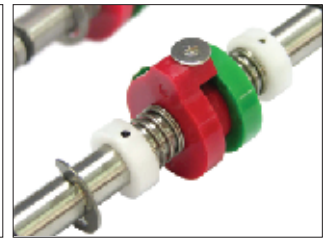


ITS Series
position monitoring switches

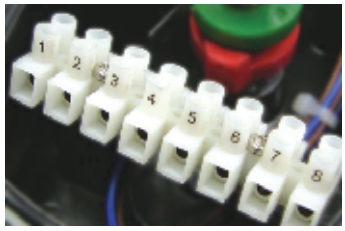
Easy set cam

Easy and precise cam set without setting tool
Red cam for close, Green cam for open

Standard Cam



Cam with Sensing Target



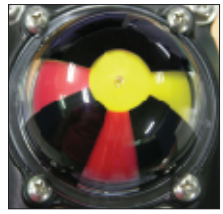
Terminal block and strips

Socket type terminal strip with screws
Max. 2.5mm^2, 26A at 30^{o}C(approved by UL, CSA)

Standard

Visual position indicator

Directly engaged with driving shaft to provide continuous position
High strength, Chemical resistance and transparent poly-carbonate
High visibility and reliability
Red for close, Yellow for open(Red for close, Green for open as option)



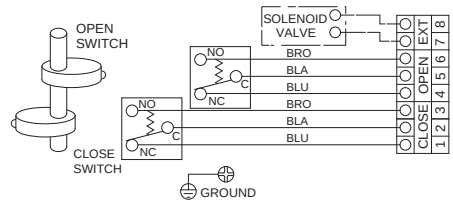
L-port

T-port

Mechanical switches

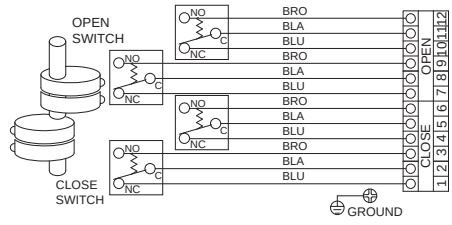
2-SPDT switches

Rating : 16A 1/2HP 125/250V AC,
0.6A 125V DC
0.3A 250V DC
approved by UL, CSA



4-SPDT switches

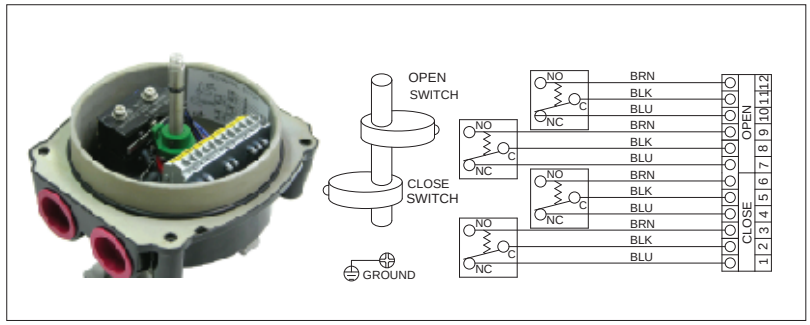
Rating : 5A 125 V AC LT130
0.6A 125V DC to 16A 250V AC
approved by UL, CSA



ITS Series
position monitoring switches

Mechanical DPDT switches

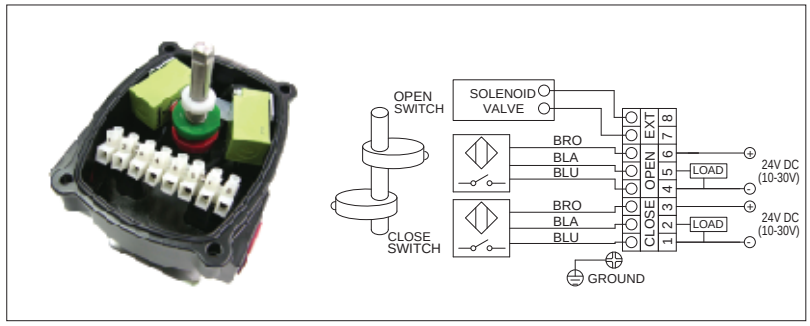
Rating : 10A 125 or 250V AC
2A 480V AC
1/8HP 125V AC
0.25HP 250V AC
0.5A 125V DC
0.25A 250V DC
approved by UL, CSA



Proximity Sensors

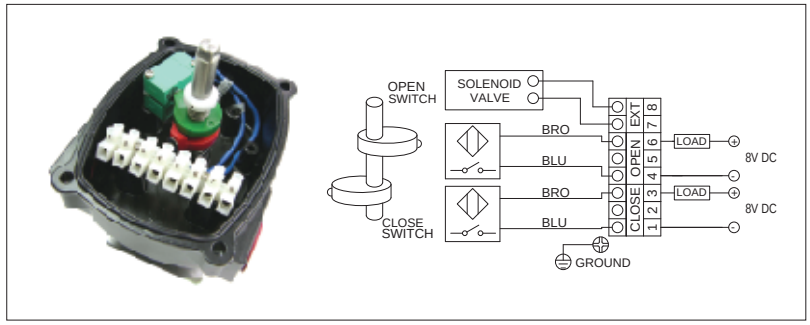
Autonics sensors

PS17-5DNU(NPN, PNP)
Voltage rating : 10~30V DC
Sensing distance : 5mm
Ambient temperature : -25ºC ~+70ºC

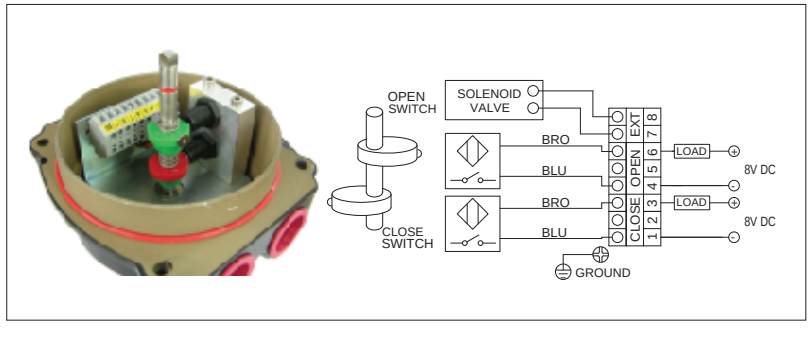


P & F sensors

NJ2-V3-N(Intrinsic safe, two wire)
Voltage rating : 8V DC
Sensing distance : 2mm
Ambient temperature : -25ºC ~+100º C



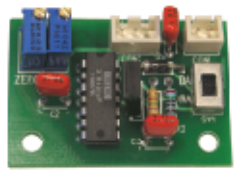
NJ4-12GK-SN
Voltage rating : 8V DC
Sensing distance : 4mm
Ambient temperature : -50ºC ~+100ºC

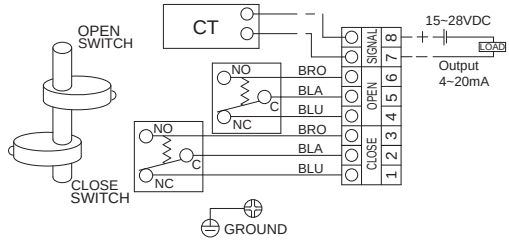


ITS Series
position monitoring switches

Position transmitter

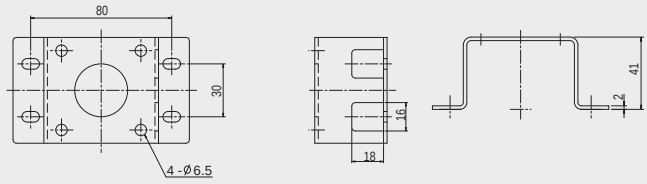
Providing 4-20mA DC(or 0~1Kohm) output signal as feedback, 15~28VDC loop power(24V DC input power)
Load impedance : 0~600 Ohm, Max output : 35mA DC
Adjustment : Zero and span



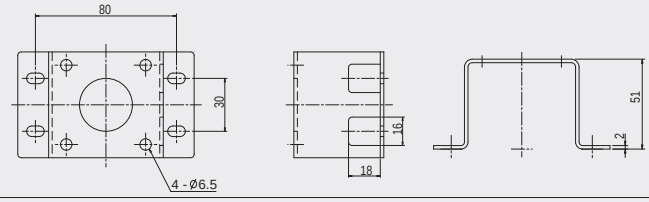


Mounting bracket(Acc. to VDI/VDE3845)

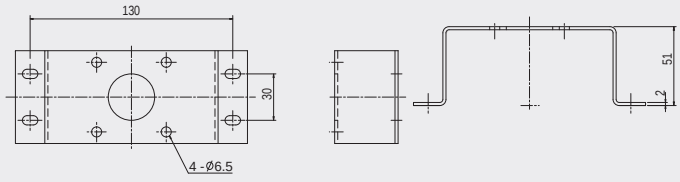
SS1



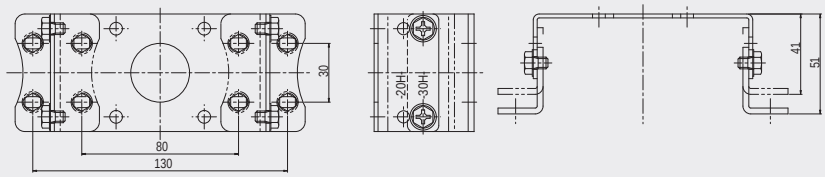
SS2



SS3



MT1



Standard bracket provided together with switch box(included)

SS1	30 x 80 x 20(H)	ST1	30 x 80 x 20(H)
SS2	30 x 80 x 30(H)	ST2	30 x 80 x 30(H)

Optional bracket provided with extra cost

SS3	30 x 130 x 30(H)	ST3	30 x 130 x 30(H)
MT1	30 x 80 x 20(H), 30 x 80 x 30(H) 30 x 130 x 20(H), 30 x 130 x 30(H)		

Others as option

Model number Legend

ITS	1	0	0
	1: Weather proof	0: Mechanical switches	0 : 2 - SPDT
			1 : 3 - SPDT
	3: Explosion proof		2 : 4 - SPDT
			3 : 2 - SPST
	5: Special material housing (316L, Duplex)		4 : 2 - DPDT
			5 : 2 - SPDT + output(0~1Kohm)
			6 : S - SPDT + output(4-20mA)
		1 : Proximity sensors	0 : Autonics(PS17-5DNU)
			1 : P & F (NJ2-V3-N)
			S: Other type sensors

- Model numbers in Green are applicable to ITS100, 300 and 500 series
- Model numbers in Red are applicable to ITS300 and 500 series

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