

Sturdy explosion proof housing and smart performance with innovative and ever-strong coil drive even under harsh working environments.

Features / Design

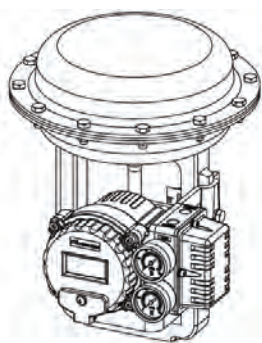
- 1.- Flameproof IECEx / ATEX / TR-CU / KC Ex d IIC T6.
- 2.- Easy and quick auto-calibration.
- 3.- Detecting RA (reverse acting) or DA (direct acting) automatically regardless of wrong air connections.
- 4.- Available to use for single or double acting without any special adjustments.
- 5.- Compact design allowing to be installed on small actuators.
- 6.- Providing error messages against performance failures.
- 7.- Possible to test the actuator with any fixed signal under a test mode.
- 8.- Programmable characteristic curve with 17 points.
- 9.- Wide operating temperature range -30 ~ + 75°C.
- 10.- Improved control of high-friction globe and ball valves by eliminating an overshoot and a hunting.
- 11.- Low air consumption.
- 12.- Providing a mounting bracket to meet IEC 60534-6-1 for linear valves.
- 13.- Supporting a NAMUR mounting pattern IEC 60534-6-2 (VDI / VDE 3845) and providing a multi-size mounting bracket for rotary valves.

Options

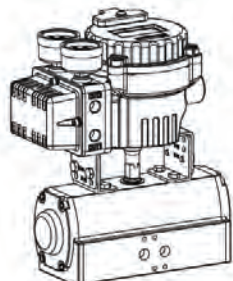
- Output position transmitter (4 - 20 mA).
- 2 x alarm limit.
- Low temperature (-40°C).
- HART communication.
- Profibus PA communication.
- Foundation Fieldbus communication.



- PILX (Linear Type)



- PIRX (Rotary Type)

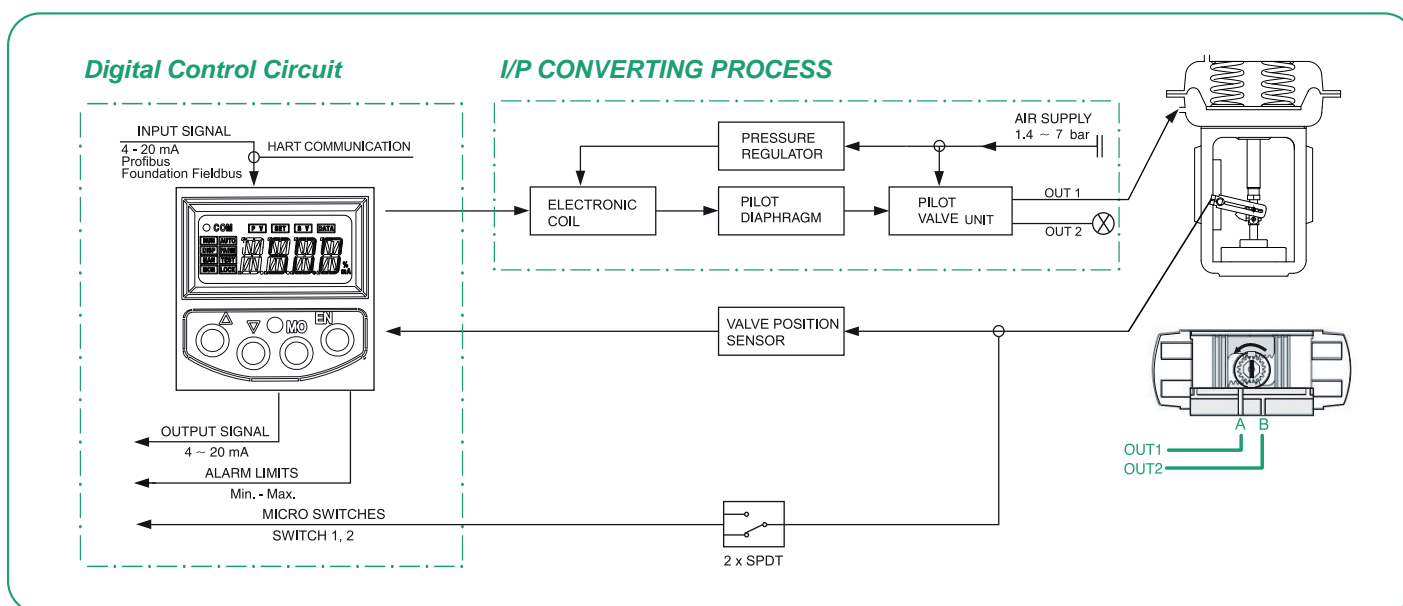


Specifications

COMMUNICATION	WITHOUT	HART	PROFIBUS - PA	FOUNDATION FIELDBUS
Input Signal	4 - 20 mA @ 24 VDC		9-32 VDC	
Min. / Max. Current	3.6 mA / 50 mA		-	
Current Consumption	-		15mA	16mA
Voltage Drop (Resistance)	8.7 VDC(435Ω)	9.4 VDC(470Ω)		-
Stroke / Angle	Linear type : 5 - 130 mm * Rotary type : 25 - 120°			
Air Supply Pressure	1.4 - 7.0 bar (20 - 100 psi), filtered, compressed dry and non-oiled to meet Class 3 of ISO 8573-1			
Output Pressure Range	0 - 100% of supply air pressure			
Air Capacity	80 μ /min = 4.8 N m ³ /h = 2.8 scfm (Sup = 1.4 bar) 233 μ /min = 14 N m ³ /h = 8.2 scfm (Sup = 6 bar)			
Air Consumption	2.8 μ /min = 0.17 N m ³ /h = 0.1 scfm (Sup = 1.4 ~ 6 bar)			
Characteristic	Linearity < \pm 0.3% F.S Hysteresis < 0.2% F.S		Sensitivity < 0.2% F.S Repeatability < 0.2% F.S	
Performance Characteristic	Linear, EQ %, Quick open, User set (17 points)			
LCD Indication	4-digit LCD indicator			
Adjustable Speed	1 - 1000 (lowest 1, highest 1000)			
Scan Time	2ms			
Shut-off Value	Range 0 - 10% of position signal			
Valve Action	direct action (DA) / reverse action (RA)			
Operating Temperature	- 30 ~ +80°C (- 22 ~ +176 ° F) **			
Pneumatic Connections	PT(Rc) 1/4 or NPT 1/4			
Electrical Connections	2 x PF(G) 1/2 , NPT 1/2 , M20 x 1.5			
Protection Class	IP66, Intrinsically safe (IECEX / ATEX / KC Ex ia IIC T6/T5)			
Body Material	Aluminum die-cast / powder-painted			
Weight	2.8 kg			

NOTES: * Up to 200mm on request ** -40 °C on request

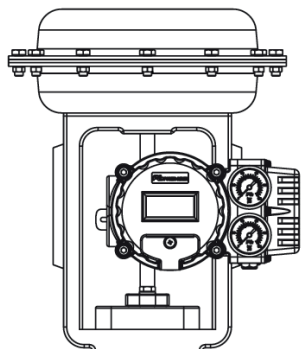
Principle of Operation



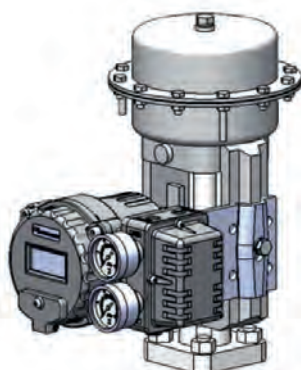
If 4-20 mA input signal(or Bus communication signal) is supplied, the micro processor compares input signal with position feedback and sends control signal to the 1/P converting module. Pneumatic signal from the 1/P converting module operates the valve and the valve stays at the desired position.

Mounting to Linear Actuator

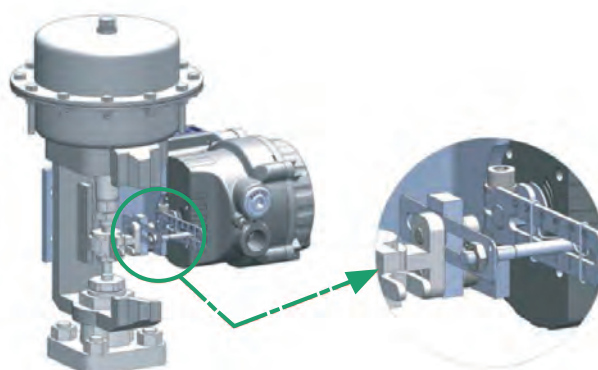
- PILX (Linear Type)



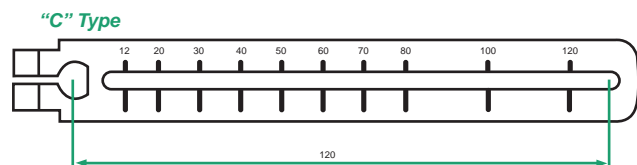
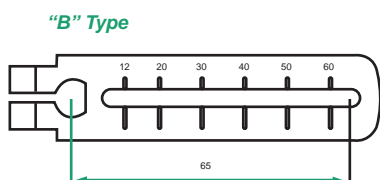
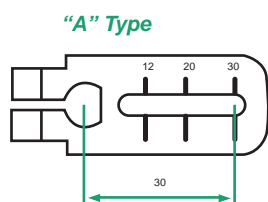
< Front View >



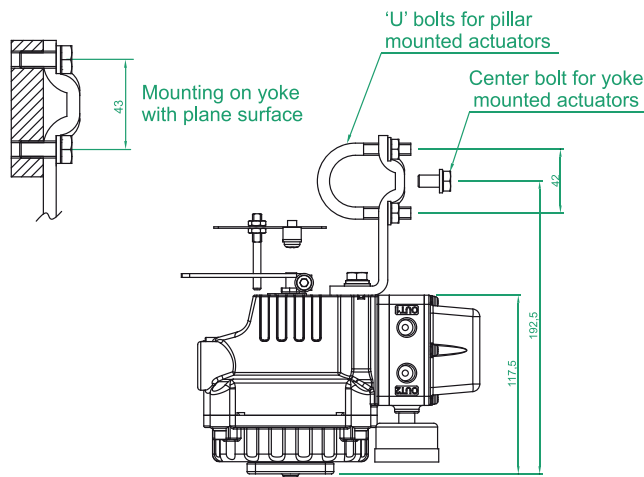
< Side View >



< Feedback Lever Connection >



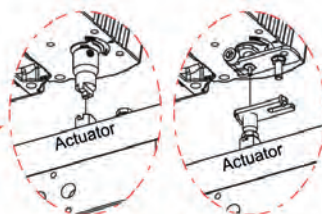
Feedback Lever



Mounting to linear actuators to IEC 60534 6-1

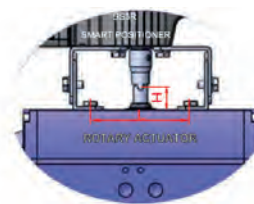
Mounting to rotary Actuator

- PIRX (Rotary Type)



NAMUR TYPE MOUNTING
(VDI / VDE 3845, IEC 60534-6-2)

FORK LEVER TYPE MOUNTING



SIZE VARIATION OF MULTI-SIZE BRACKET
1) 80 X 30 X 20 (H), 4) 130 X 30 X 20 (H)
2) 80 X 30 X 30 (H), 5) 130 X 30 X 30 (H)
3) 80 X 30 X 50 (H), 6) 130 X 30 X 50 (H)
H : ROTARY ACTUATOR SHAFT HEIGHT
L : LENGTH (80 OR 130MM)

Air Connections

- PILX (Linear Type)

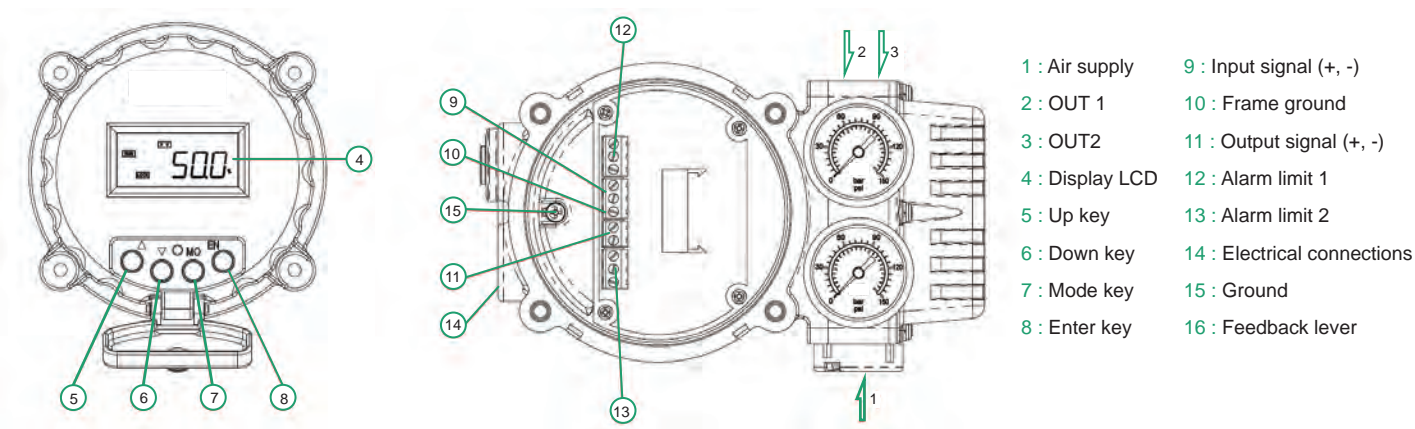
DIRECT ACTING (DA)		REVERSE ACTING (RA)	
<p>DA 1</p> <p>As the input signal increases, Valve stem moves downwards Actuator : DA</p>	<p>OUT2 must be plugged</p>	<p>RA 1</p> <p>As the input signal increases, Valve stem moves upwards Actuator : RA</p>	<p>OUT2 must be plugged</p>
<p>DA 2</p> <p>As the input signal increases, Valve stem moves downwards Actuator : DA</p>	<p>OUT1 must be plugged</p>	<p>RA 2</p> <p>As the input signal increases, Valve stem moves upwards Actuator : RA</p>	<p>OUT1 must be plugged</p>
<p>DA 3</p> <p>As the input signal increases, Valve stem moves downwards</p>		<p>RA 3</p> <p>As the input signal increases, Valve stem moves upwards</p>	

- PIRX (Rotary Type)

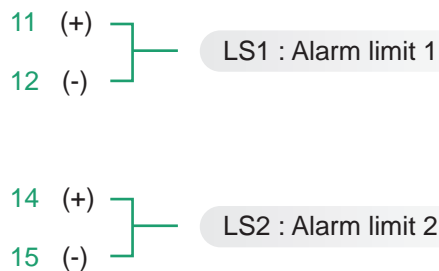
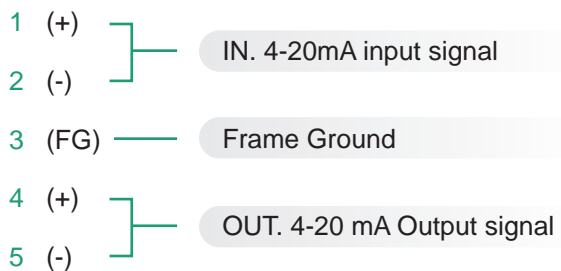
SPRING RETURN	DOUBLE ACTING	DOUBLE ACTING
<p>OUT2 must be plugged</p>		
As the input signal increases, Actuator shaft rotates counter-clockwise	As the input signal increases, Actuator shaft rotates counter-clockwise	As the input signal increases, Actuator shaft rotates clockwise

SPRING RETURN		DOUBLE ACTING
Reverse Acting	Out 1 : piped, Out2: plugged	Out 1 : piped to Actuator port A, Out2: piped to Actuator port B
Direct Acting	Out 1 : plugged, Out 2 : piped	Out 1 : piped to Actuator port B, Out2: piped to Actuator port A

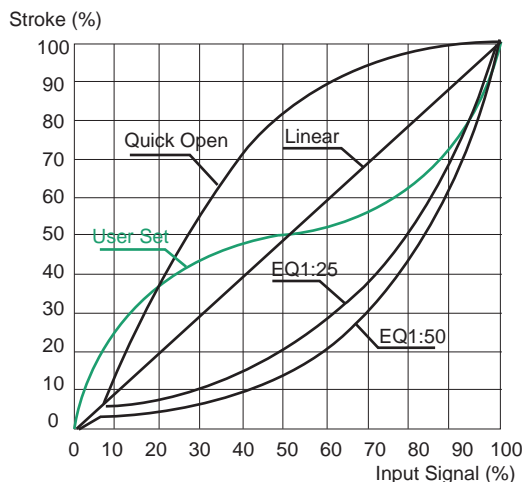
PILX / PIRX Front Cover PILX / PIRX Front Cover Removed



Electrical Connections



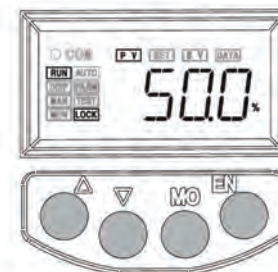
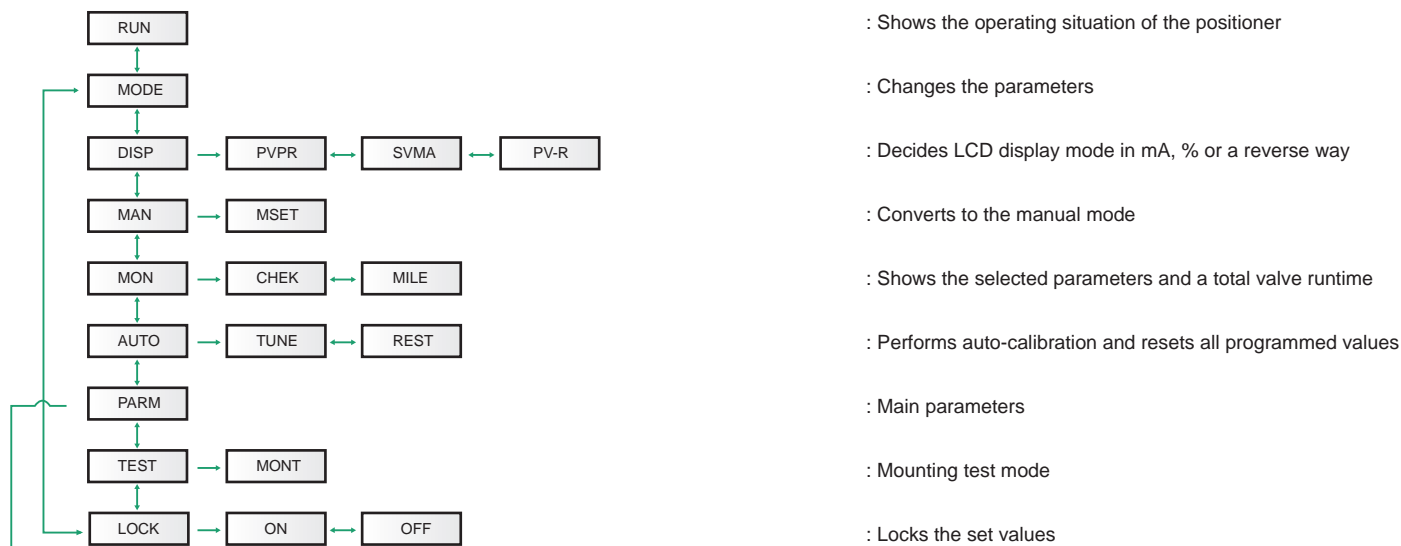
Characteristic Curves)



Quick Start and Checking

	BUTTON	ACTION
Auto Calibration	● MO	Push 5 seconds for auto-calibration
Span	▽DN ● ENT or ▽DN ● or ●△UP	Push △DN ● 5 seconds to change a measured span (Try this option only when a valve doesn't reach a desired position)
Ambient Temp.	● ENT	Confirm an ambient temperature surrounding this smart valve positioner

Parameters Diagram

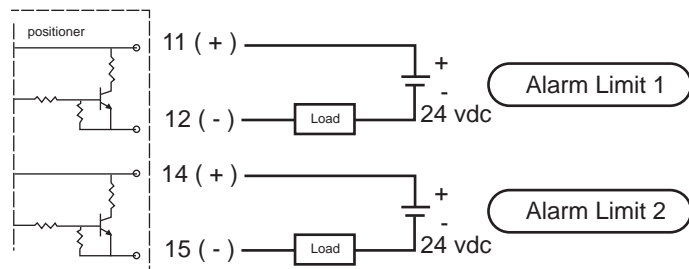


LCD Display
● COM : Hart Communication

PARAMETER	DESCRIPTION	FUNCTION	DEFAULT
INPU	Input signal	4 -20mA or 20- 4mA	4 ~ 20mA
R/DA	RA/DA	Reverse acting or direct acting	Auto-set
L/EQ	Characteristic	Linear, E.Q.%(1 :25 or 1:50), Quick open or User set(17points)	Linear
SPAN	Span adjustment	0 ~ 100%	100%
ZERO	Zero adjustment	0 ~ 99%	0%
PID	P-GN / I-GN / D-GN	Proportional / Integral / Differential gain value	Auto-set
SPED	Response speed	1 ~ 1000	1000
SWST	Slow start	Smooth operation (ON or OFF)	Auto-set
CNLT	Control limit	50 ~ 1250	Auto-set
GCNL	Gap control limit	50 ~ 1250	Auto-set
DEAD	Dead band	0 ~ 9.99%	0.5%
FDGN	D-gain setting for hard mode	D-Gain setting for hard mode	Auto-set
C/MD	NORM / HARD / SMALL	Standard actuator, strong valve packing friction, small actuator	NORM
SHUT	Shut-off	0 ~ 9.9%	0.3%
FOPN	Full-open	0 ~ 9.9%	0.3%
OUT	Output signal	4 ~ 20mA or 20 -4mA	4 ~ 20mA
SPLT	Split range	4 ~ 12mA or 12 -20mA	4 ~ 20mA
DIGN	Display place	Movement to one or two decimal places	1
ALAM	Alarm limit low, high	AL 1 L/ AL 1 H / AL2L/ AL2H	0 ~ 10%, 90 -105%
ICAL	IN4M / IN20	Internal match with 4-20mA input signals from a calibrator	Factory setting
FCAL	FB4M / FB20	Internal match with 4-20mA output signals to a calibrator	Factory setting
POLL	Polling address	HART Communication polling address (0 ~ 15)	0
PST	Partial stroke test	Checks a valve status	OFF

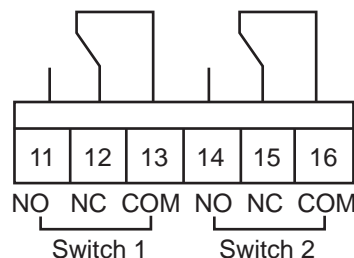


Wiring Alarm Limits



Note that 24 VDC should be supplied for power.

Micro Switches (SPDT)

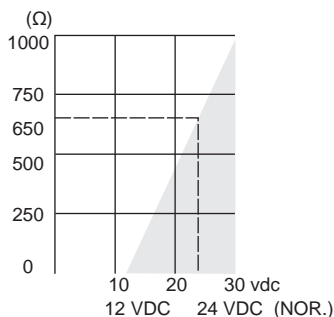
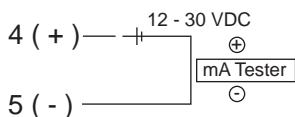


Measuring Output Signal

1 With mA loop cibrator



2 With multimeter (mA)

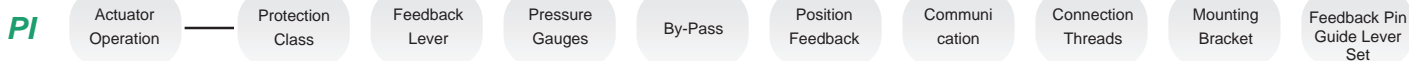


< Transmitter Load Limitation >

ZERO and SPAN of position feedback are automatically set after auto-calibration process.

POSITION TRANSMITTER	
Output Signal	4 - 20 mA, 2-wire
Power Supply	12 - 30 VDC
Output Current Limit	30 mA DC
Linearity	1% F.S
Operating Temp.	-30 ~ +80 °C

How to Order

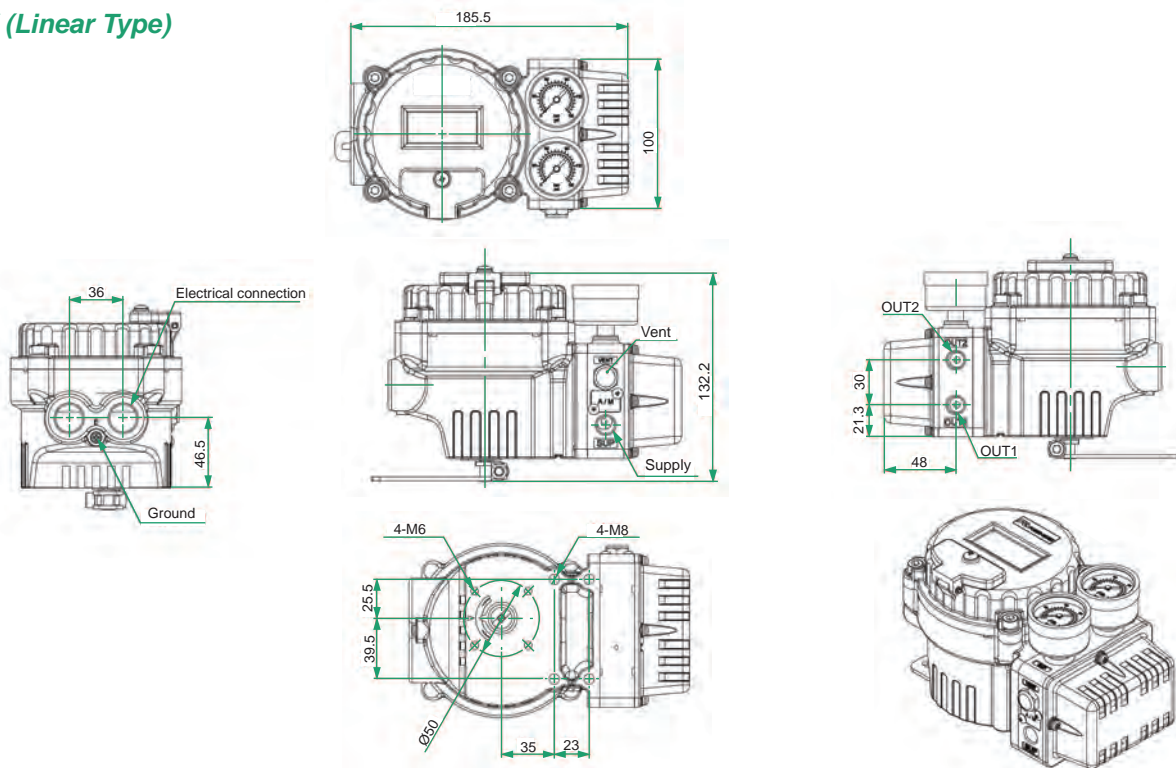


DESCRIPTION	CODE	DESCRIPTION	CODE
Actuator Operation:	LX Linear type RX Rotary type	Position Feedback:	N None O Position transmitter (4~20mA output signal)
Protection Class:	F Flameproof IECEX / AT EX / TR-CU Exd IICT6 K Flameproof KC- Ex d IIC T6		L 2 x alarm limit S 2 x micro switch (SPDT) M O + L Q O + S
Feedback Lever: - Linear type:	A Stroke (5~30mm) B Stroke (5~65mm) C Stroke (5~130mm) D Stroke (80~200mm)	Communication:	N None H HART P Profibus PA F Fieldbus Foundation
- Rotary type:	F Fork lever N NAMUR shaft (direct mounting)	Connection Threads: (pneumatic - electrical)	3 PT(Rc) 1/4 - PF (G) 1/2 4 NPT 1/4 - NPT 1/2 5 PT(Rc) 1/4 - M20 X 1.5
Gauge Block:	0 Not mounted 1 6 bar (90 psi) 2 10 bar (150 psi)	Mounting Bracket:	N None L IEC 60534-6-1 (for PIL) R IEC 60534-6-2 (for PIR) VDI/VDE 3845
By-pass:	N None (standard) Y Yes (auto/manual screw)	Feedback Pin Guide Lever Set: (only for linear type SS2L)	0 Not Included 1 Included



Dimensions

- PILX (Linear Type)



- PIRX (Rotary Type)

