ECON® Series 3300
Smart Valve Positioner

Scan for manual

Contents

1 Introduction

1.1 General Information for the users

Thank you for purchasing the ECON® series 3300 Smart Valve Positioner. Each product has been fully inspected after its production to offer you the highest quality and reliable performance. Please read the product manual carefully prior to installing and commission the product.

- For safety, it is important to follow the instructions in the manual. ERIKS will not be held responsible for any damages caused by user's negligence.
- The manual should be provided to the end-user.
- Any modifications or repairs to the product may only be performed if expressed in this manual.
- The manual can be altered or revised without any prior notice. Any changes in product's specification, design, and/or any components may not be printed immediately but until the following revision of the manual.
- The manual should not be duplicated or reproduced for any purpose without prior approval.

1.2 Manufacturer Warranty

- For the safety, it is important to follow the instructions in the manual. Manufacturer will not be responsible for any damages caused by user's negligence.
- Manufacturer will not be responsible for any damages or accidents as a result of any alteration or modification of the product and its parts. If any alteration or modifications are necessary, please contact ERIKS directly.
- Manufacturer warrants the product from the date of original purchase of the product for one (1) year, except as otherwise stated.
- Manufacturer warranty will not cover products that have been subjected to abuse, accidents, alterations, modifications, tampering, negligence, misuse, faulty installation, lack of reasonable care, repair or service in any way that is not contemplated in the documentation for the product, or if the model or serial number has been altered, tampered with, defaced or removed; damages that occurs in shipment, due to weather conditions, failure due to power surge, or cosmetic damage. Improper or incorrectly performed maintenance will void this limited warranty.

1.3 Explosion Proof Warning (Only for Intrinsic safety type positioners)

Please ensure the unit is being used and installed in conformity with local, regional, and national explosion proof legislation, within the proper safety barrier environment.

- Refer to paragraph 2.5 "Certifications".
- Explosion proof type of cables and gaskets should be used, when inflammable gases are present at the installation site.
- Positioner has 2 ports for power connection. Explosion proof type wires and packing should be used. Blind plug is required when any port is not being used.
- Ring terminal with surface area of more than 0.195mm^2 with M4 spring washer should be used to connect the power.
- For external ground terminal, ring terminal with surface area of more than 5.5mm^2 should be used.

- Wiring in these applications must meet the requirements.
- Substitution of components may impair intrinsic safety.
- EXPLOSION HAZARD. Do not connect or disconnect wiring unless all sources of power have been removed or the area is known to be non-hazardous.
  (French) RISQUE D'EXPLOSION. Ne pas raccorder ou débrancher le câblage à moins Toutes les sources d'énergie ont été enlevées ou la zone est connue pour être non dangereux.
- The enclosure of ECON® series 3300 contains aluminum, which is considered to constitute a potential risk of ignition when subjected to impact or friction.
- Care must be used during installation in locating this equipment to prevent impact or friction
- Some of the enclosure parts are made of non-metallic materials, to prevent the risk of electrostatic sparking. Clean the enclosure only with a damp cloth.
- The product must be installed in such a manner as to minimize the risk of impact or friction with other metal surfaces.
- For Intrinsically Safe installations, the product must be connected to suitably rated intrinsically safe equipment, and must be installed in accordance with applicable intrinsically safe installation standards.

2 Product Description

2.1 General

ECON® series 3300 Smart Valve Positioner accurately controls valve stroke in response to an input signal of 4-20mA from a process controller. A built-in micro-processor optimizes the positioner's performance and provides unique functions such as **Auto-Calibration, PID Controlled , Alarms, and HART® Protocol Communications.**

2.2 Main Features and Functions

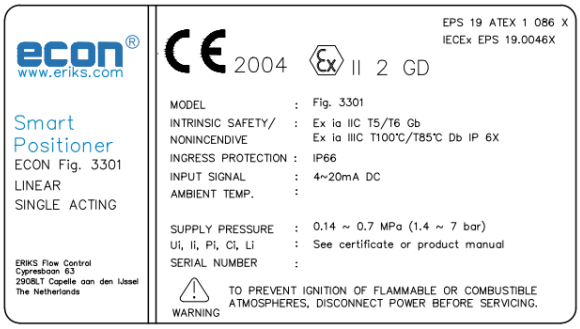
- LCD display enables users to monitor the positioner status.
- Positioner operates normally during sudden changes in supply pressure.
- Low air consumption level and low voltage use (8.5 V) yield to lower plant operating costs. The series 3300 is compatible with most of controllers.
- Variable orifices can be used to minimize the hunting occurrence and optimize operating conditions.
- Valve system feedback is greatly improved by the accuracy and fast response of the series 3300.
- Different valve characteristics can be adjusted – Linear, Quick Open, Equal Percentage, and Custom which user can make 16 points characterizations.
- Tight Shut – Close and Shut - Open can be set.
- PID parameters can be adjusted in the field without any additional communicator.
- A/M switch can be used to direct supply air to the actuator or to manually operate the positioner or valve.

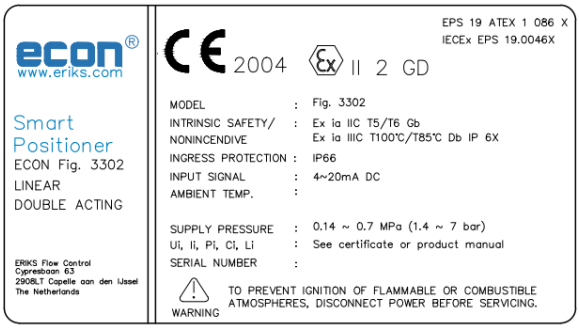
- Split range 4-12mA or 12-20mA can be set.
- Operating temperature is -30 ~ 85'C.
- Manual Operation allows the user to operate the valve manually.
- It has IP66 ingress protection grade.
- Epoxy polyester powder coating resists the corrosion process.
- Maintenance of the positioner is easy because of modularized inner structure.
- SIL2 certified.

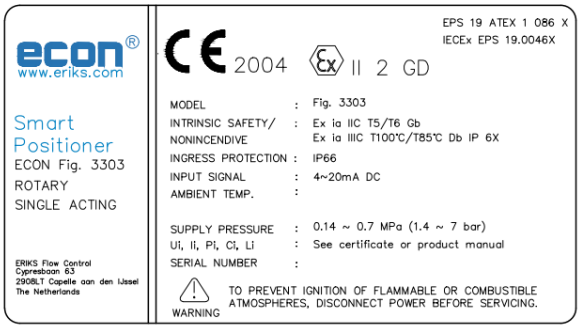
2.3 Type Plate Description

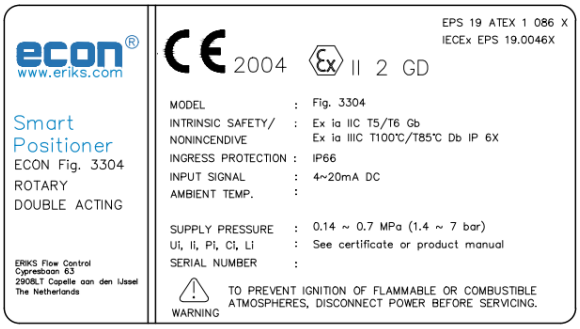
Standard – Non-explosion proof types

INTRINSIC SAFE TYPES









Precautions

Be careful not to apply volatile solvent (hardener of instant adhesive, acetone, WD-40, etc.) to the sticker nameplate. Printed contents may be erased.

2.4 Product Specification

Figure	3301	3302	3303	3304
Motion type	**Linear**		**Rotary**	
Acting Type	**Single**	**Double**	**Single**	**Double**
Input Signal	4~20mA DC			
Min. Current Signal	3.2mA(Standard), 3.8mA(HART® Included)			
Supply Pressure	0.14~0.7 MPa (1.4~7 bar)			
Stroke	10~150 mm		0~90°	
Impedance	Max.450Ω @ 20mA DC			
Air Connection	1/4" NPT			
Gauge Connection	1/8" NPT			
Conduit Entry	½" NPT with gland for 8 mm cable			
Protection Grade	IP66			
Explosion Proof	ATEX, Ex ia IIC T5/T6 Gb, Ex iaD IIIC T100℃/T85℃ Db, IP66			
Ambient Temp.	Operating Temp. :-30~85℃			
Linearity	±0.5% F.S.			
Hysteresis	0.5% F.S.			
Sensitivity	±0.2% F.S			
Repeatability	±0.3% F.S			
Flow Capacity	70 LPM (Sup.=0.14 MPa)			
Air Consumption	Below 2 LPM (sup = 0.14 MPa), Below 3 LPM (sup = 0.7MPa)			
Output Characteristic	Linear, Quick Open, EQ%, User Set (16 point)			
Vibration	No Resonance up to 100Hz @ 6G			
Humidity	5-95% RH @ 40℃			
Communication	HART® Communication			
Feedback Signal	4~20mA (DC 10~30V)			
Material	Aluminum Die-casting			
Weight	2.0kg			
Painting	Epoxy Powder Coating			

Tested under ambient temperature of 20'C, absolute pressure of 760mmHg, and humidity of 65%.

2.5 Certifications

ATEX
Type : Intrinsic safety
Rating : II 2G Ex ia IIC T5/T6 Gb, II 2D Ex iaD IIIC T100℃/T85℃ Db, IP6X
Certification No. : EPS 12 ATEX 1 456 X
Ambient temperature : -40 ~ +60℃ (T5), -40 ~ +40℃ (T6)

Electromagnetic Compatibility (EMC)
- EMC directive 2014/30/EC from April 2016
- EC Directive for CE conformity marking

SIL2 (in a redundant structure up to SIL 3)
Intended application : Safety function is defined as to move into fail-safe-position, when signal to positioner is interrupted.

2.6 Parts and Assembly

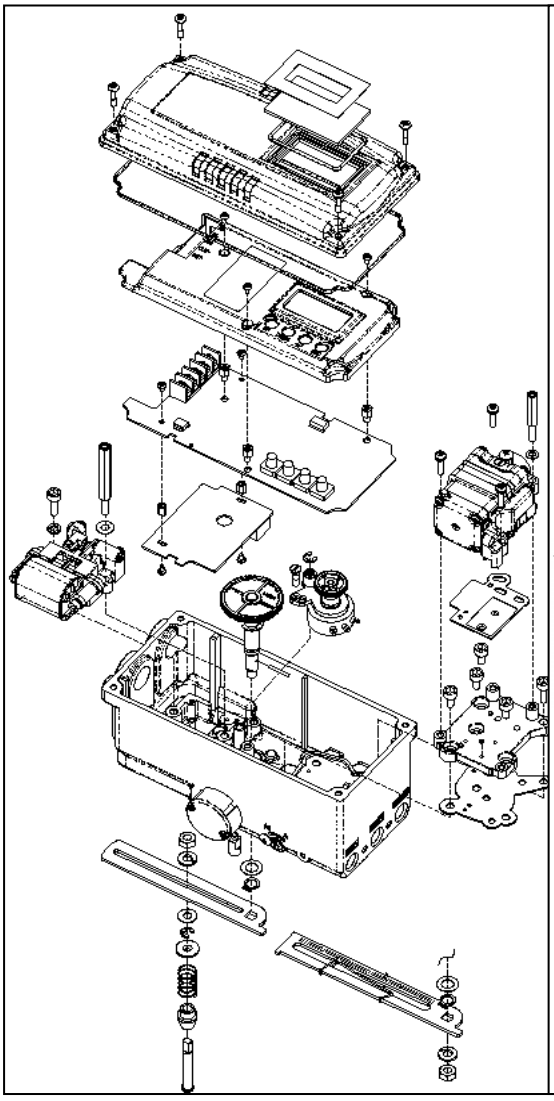


Figure 3301/3302 exploded view

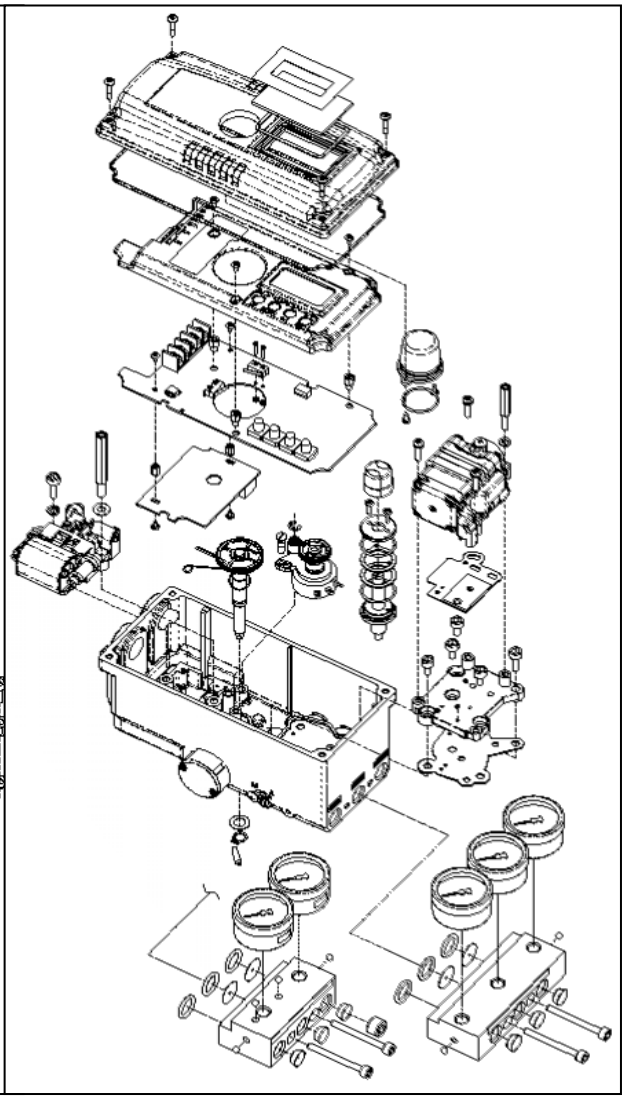


Figure 3303/3304 exploded view

2.7 Product Dimensions

Figure 3301 and 3302

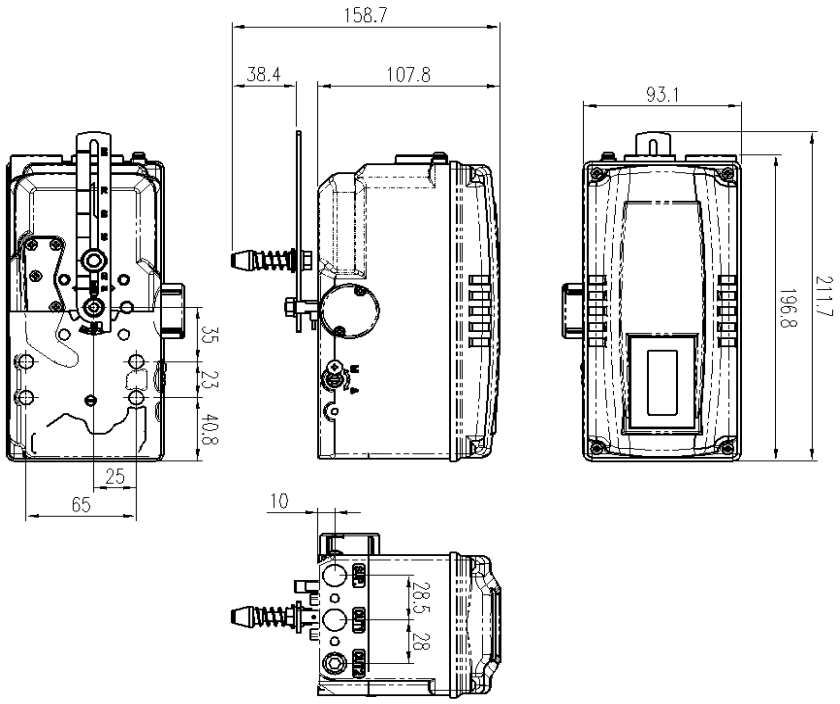
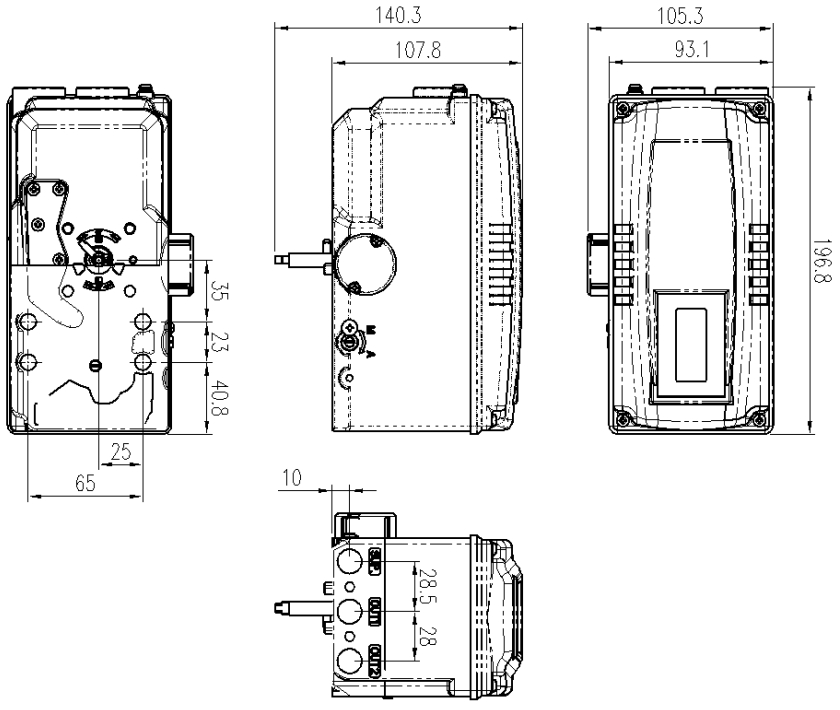


Figure 3303 and 3304

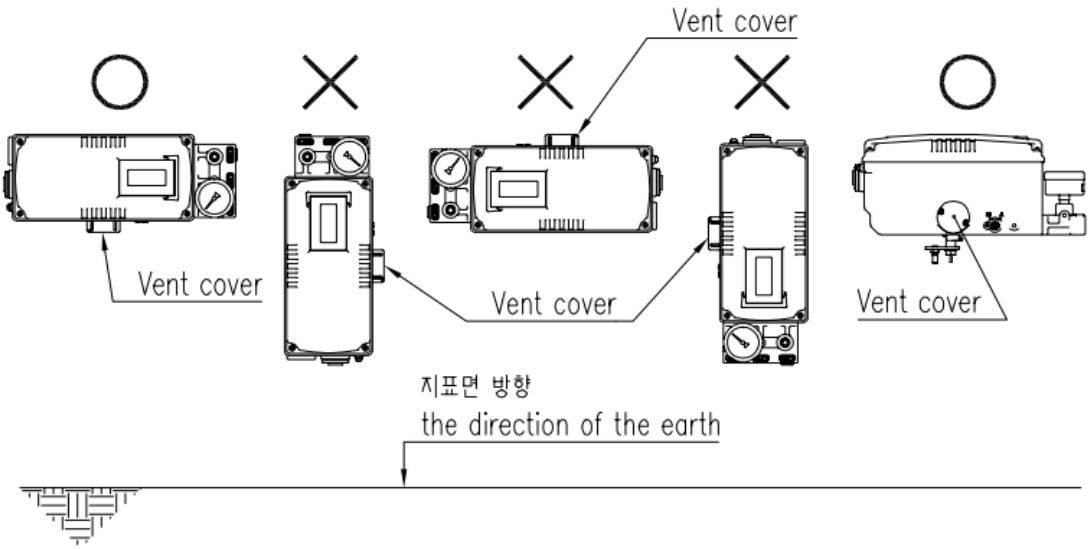


3 Installation

3.1 Safety

When installing a positioner, please ensure to read and follow safety instructions.

- Any input or supply pressure to valve, actuator, and / or to other related devices must be turned off.
- Use bypass valve or other supportive equipment to avoid entire system “shut down”.
- Ensure there is no remaining pressure in the actuator.
- The positioner has a vent cover to exhaust internal air and drain internal condensation water. When installing the positioner, make sure the vent cover must be facing downward. Otherwise, the condensation water could cause damage-to PCB



3.2 Figure 3301 and 3302 Installation

Figure 3301 and 3302 should be installed on linear motion valves such as globe or gate type which uses spring return type diaphragm or piston actuators. The following components are supplied in the linear positioner kit:

- Positioner unit
- Feedback lever and lever spring
- Bar slide assembly
- Standard linear bracket
- 2 pcs x U-bolt M8
- 2 pcs x M8 hexagonal headed bolts
- 4 pcs x M8 spring washer
- 6 pcs x M8 plate washer
- 4 pcs x M8 nuts
- ½” NPT gland for 6-8 mm cable diameter

  (air connections and air hose to be supplied by customer)

3.2.1 Installation Steps

1. A correct bracket must be used in order to mount the positioner on the actuator yoke. Please consider following important points when a custom bracket is being designed.
   - ➢ Positioner's feedback lever must be parallel to the ground at 50% of the valve stroke.

2. Feedback lever connection with the coupling of the actuator should be installed in such a way that the valve stroke length coincides with the corresponding Figure in "mm" marked on the feedback lever. Improper setting may cause poor linearity and may create unnecessary hunting during operation.
   Assemble the positioner with the bracket supplied by fastening the bolts. Please refer to the back of the positioner for size of the bolts. The standard bolt size is M8.

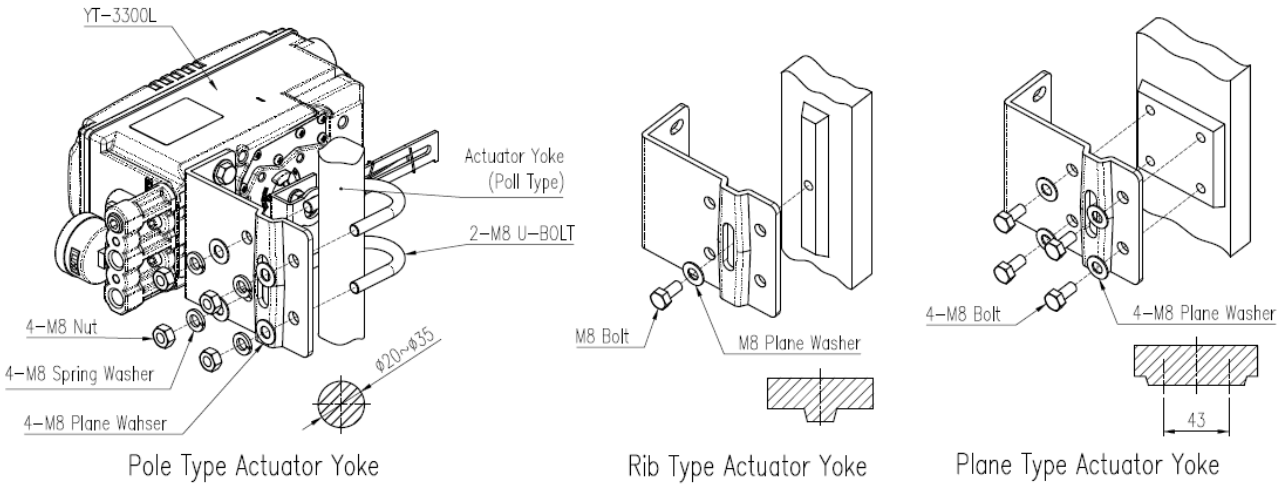
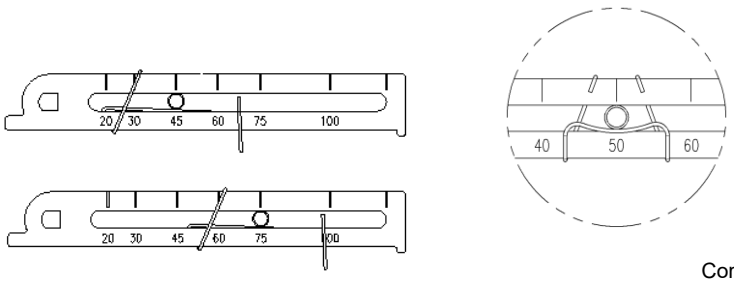


Figure 3301/3302

3. Check the valve stroke. The stroke marks are indicated on the feedback lever of the positioner. Position the connection pin at the number on the feedback lever which corresponds to the desired valve stroke. To adjust, move the bracket, the connection pin or both.



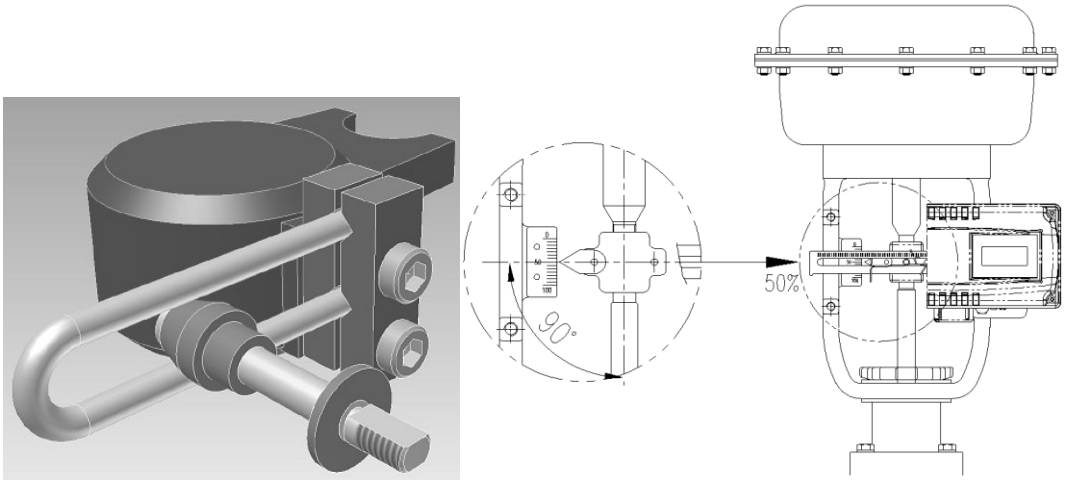
Correct way of Pin Insertion

4. Attach the bar slide assembly with the supplied mounting bolts onto the actuator coupling.

5. Mount the positioner with the bracket and the U-bolts onto the actuator yoke – **DO NOT TIGHTEN POSITIONER COMPLETELY.**

6. Connect supply pressure to the actuator temporarily. Supply enough supply pressure to the actuator in order to position the actuator clamp at 50% of the total valve stroke.

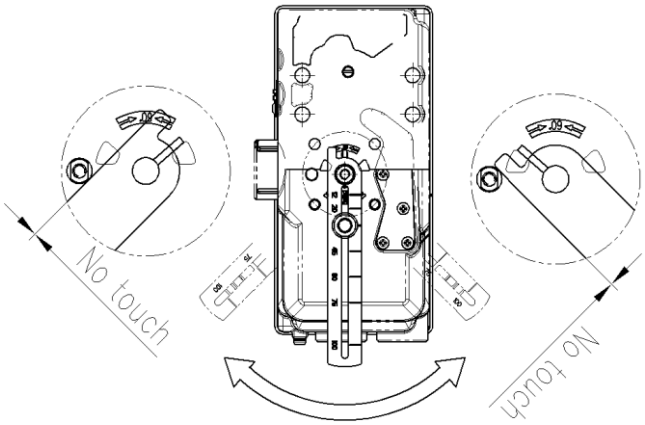
7. Insert the connection pin of the feedback lever in to the bar slide assembly. The pin should be inserted when the actuator clamp is at 50% of the total valve stroke.



Correct way to connect feedback lever, connection pin, and lever spring

8. Check if feedback lever is parallel to the ground at 50% of the valve stroke. If it is not parallel, adjust the bracket or feedback link bar to make parallel. Improper installation may cause poor linearity and may create unnecessary hunting during the operation.

9. After installing the positioner, operate the valve from 0% to 100% stroke by using direct air to the actuator (manual position). On both 0% and 100%, the feedback lever should not touch the lever stopper, which is located on the back of the positioner. If the feedback lever touches the stopper, the positioner should be installed further away from the yoke.



Feedback lever should not touch lever stopper 0% ~ 100% valve stroke.

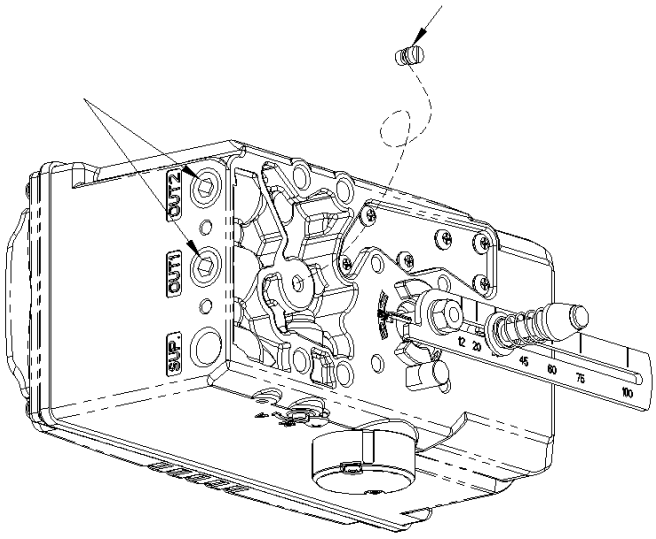
10. After the installation, tighten all of the bolts on the bracket, the feedback lever, and the connection pin.

3.3 Figure 3301 Direct-Mounting Installation

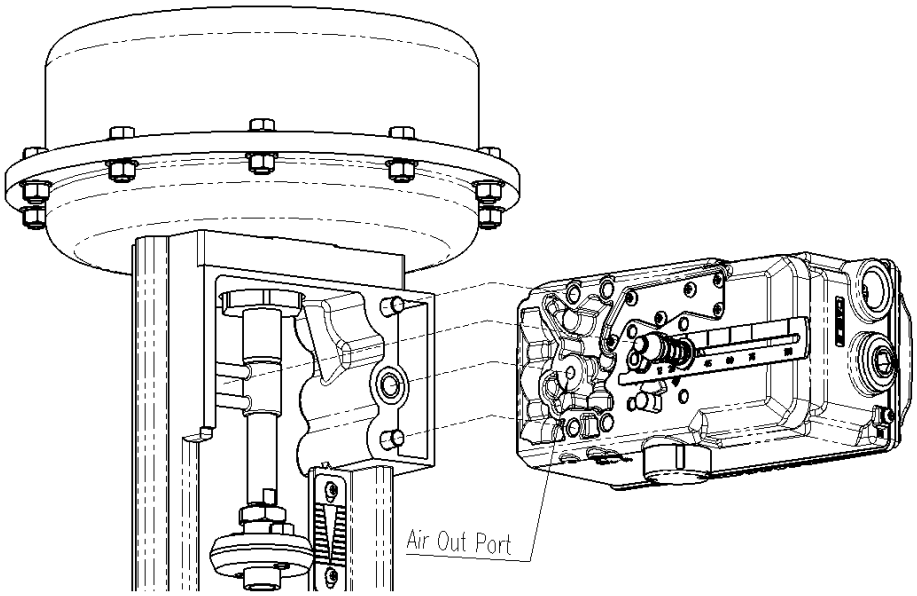
Figure 3301 can be installed on direct-mounting / tube-less type actuators.

3.3.1 Installation Steps

1. Please remove the plug which blocks OUT port on the back of the Figure 3301 unit. OUT ports on the side of the positioner should be blocked by plugs.



2. Mount Figure 3301 onto actuator's yoke by using 2 bolts. As you mount the positioner, please be careful not to lose O-rings from the air channel. Please ensure that the lever adapter connection has been properly installed onto actuator's stem before tightly fastened.



3.4 Figure 3303 and 3304 Installation

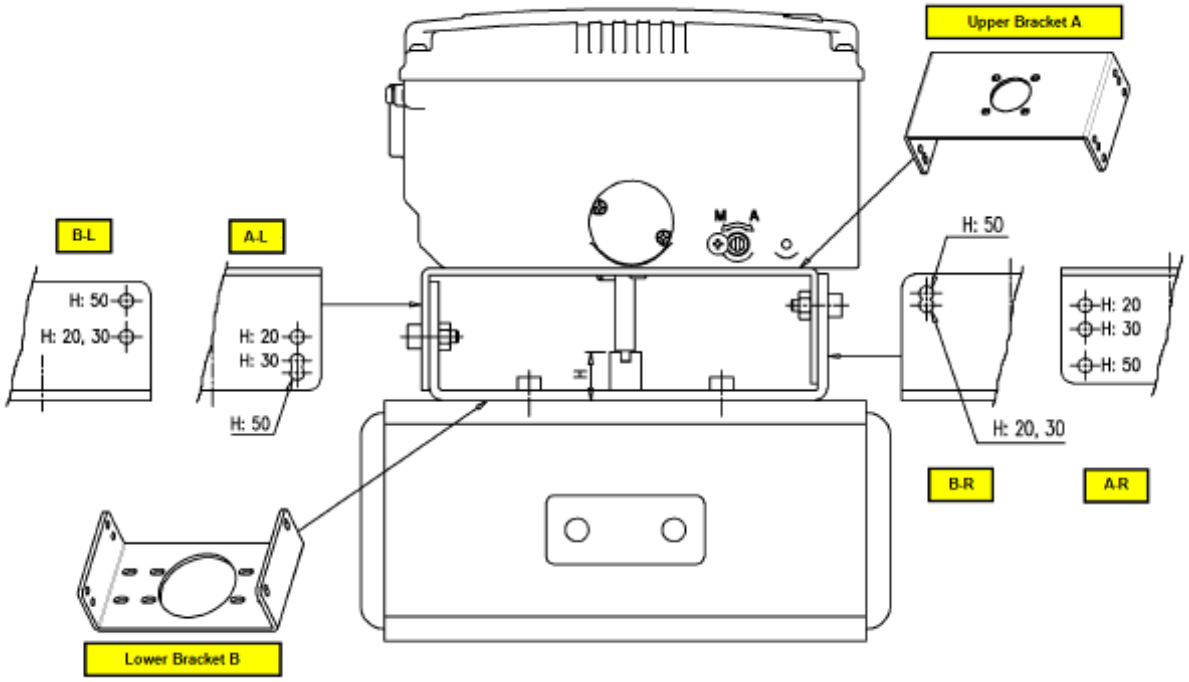
Figure 3303 and 3304 should be installed on rotary motion valve such as ball or butterfly type which uses rack and pinion, scotch yoke or other type of actuators which stem rotates 90 degrees. The following components are supplied in the quarter turn positioner kit:

- Positioner unit
- Standard rotary bracket
- 8 pcs x M6 hexagonal headed bolts
- 4 pcs x M6 spring washer
- ½" NPT gland for 6-8 mm cable diameter

  (Mounting bolts and washers to actuator, air connections and air hose to be supplied by customer)

3.4.1 Bracket information

The bracket supplied standard with Figure 3303 and 3304 is made out of two components. The bracket is designed to fit onto the actuator with 20 mm stem height (H). If actuator stem height (H) is 30 mm or 50 mm, the bracket must be adjusted. Please refer to below table how to adjust the bracket.



Actuator stem Height (H)	Markings of bolt holes	
	A-L & A-R	B-L & B-R
20 mm	H : 20	H : 20, 30
30 mm	H : 30	H : 20, 30
50 mm	H : 50	H : 50

Using hexagonal bolts and washer, fasten Figure 3303/3304 with the supplied bracket. Do not tighten bolts completely before correct mounting of Figure 3303/3304 has been confirmed. Insert Figure 3303/3304 main shaft into actuator's stem, and place the bracket align to the actuator's bolt holes. After the alignment, please fasten all of the bolts.

4 Connections

4.1 Safety

- Supply pressure should be clean and dry air – avoiding moisture, oil or dust.
- It is always recommended to use an air filter regulator.
- **The operation of this positioner has only been tested with clean air. For gases other than clean air please contact ERIKS for suitability.**

4.2 Supply Pressure Condition

- Dry air with at least 10℃ lower than ambient temperature.
- Avoid dusty air. Positioner's inner filter can only filter 5 micron or larger.
- Avoid oil.
- Comply with ISO 8573-1, Class 2 (solid particle size and density and oil content).
- Supply pressure range is 0.14~0.7 MPa (1.4~7 bar)
- Set air filter regulator's pressure level 10% higher than actuator's spring range pressure.

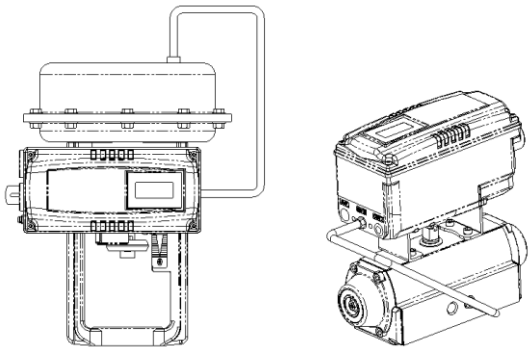
4.3 Piping Condition

- Ensure inside of pipe is clean of obstructions.
- Do not use pipeline that is squeezed or shows any type of damages.
- Pipeline should have more than 6mm of inner diameter (10mm outer diameter) to maintain flow rate.
- The length of pipeline system should not be extremely long. Longer pipeline system may affect flow rate due to the friction inside of the pipeline.

4.4 Connection – Actuator

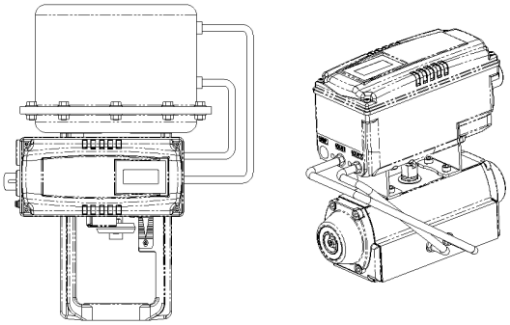
4.4.1 Single acting actuator – Figure 3301 & 3303

Singe acting type positioner is set to use OUT1 port. OUT1 port should be connected with the supply pressure port of the actuator when using single acting type of spring return actuator.



4.4.2 Double acting actuator – Figure 3302 & 3304

Double acting type positioner is set to use OUT1 and OUT2 port. As input signal increases, the supply pressure will be supplied through OUT1 port.



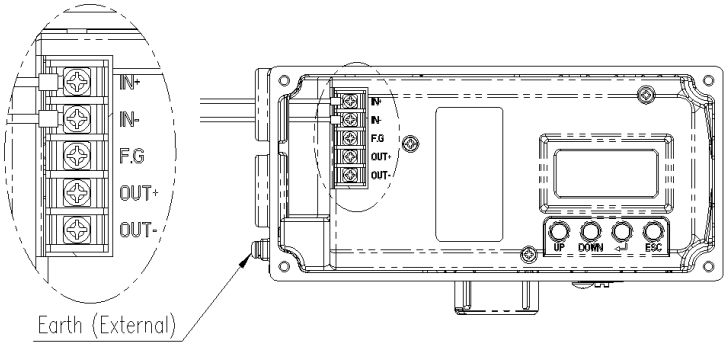
4.5 Connection – Power

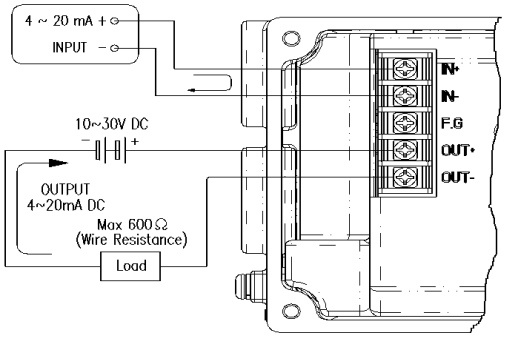
4.5.1 Safety

- Conduit entry connection tap is 1/2” NPT with a conduit for 8 mm cable.
- Before connecting terminal, ensure that the power is off completely. **Do not open the cover when the power is still alive.**
- Please use insulated electrical connection ring-type lug to protect against vibration or any other external impact.
- Positioner with PTM options must be supplied 10~28V DC separately. **It should not exceed 30V DC.**

- Positioner should be grounded.
- Please use twisted cable with conductor section min. 1.25mm^2 and suitable for 600V (complying to the conductor table of NEC Article 310.) The outer diameter of the cable should be between 6.35 ~ 8 mm. Use shield wire to protect against electro-magnetic field and noise.
- Please do not install the cable near high noise equipment, such as an high-capacity transformer or motor.

4.5.2 Terminal Overview





Positioner Terminal

IN +:	Input Signal (+)	
IN -:	Input Signal (-)	
FG:	Ground	
OUT+:	Feedback Signal (+)	*(if mounted)*
OUT-:	Feedback Signal (-)	*(if mounted)*

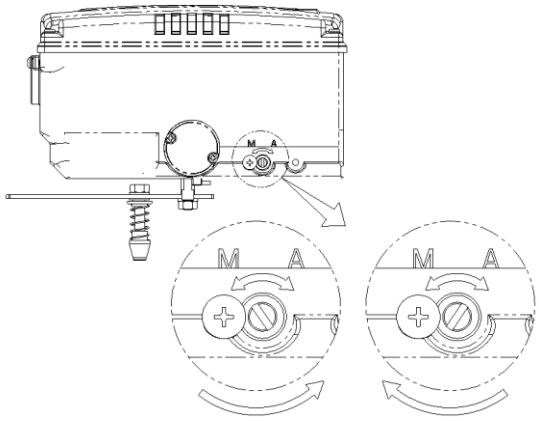
4.5.3 Ground

1. Ground connection must be done before operating the positioner.
2. Open terminal cover and locate ground terminal plate on the right hand bottom side of the terminal plate. The outer cable entry is located at outside of the terminal. Please make sure that the resistance is less than 100 Ohm.
3. When using external ground, use (+) screw driver to unscrew the ground bolts. Insert outside ground bolts and spring washer into ring type terminal of the ground cables and tighten them with bolts.
4. When using internal ground, use 3mm wrench to loosen locking bolts of the terminal box cover.

5 Adjustments

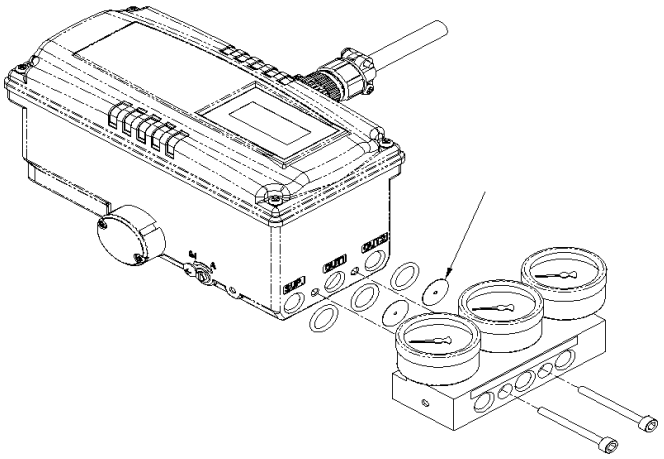
5.1 Auto/Manual Switch (A/M Switch)

Auto/Manual Switch allows the positioner to be functioned as by-pass. If switch is set as Auto, the positioner will operate per input signal. If switch is set as Manual, the positioner will send supply pressure directly to the actuator.



5.2 Variable Orifice Adjustment

Extremely small size of the actuator can cause hunting of the positioner. To adjust flow rate to the actuator, variable orifice can be inserted. The size of orifice is Ø 1 mm. Please note that these orifices can only be used in conjunction with a gauge block. The orifices are supplied standard with the optional gauge block.



5.3 Option PCB Adjustment

By adding option sub-PCB, the positioner can be equipped with extra functions.

There are 3 types of sub-PCB's:

- HART® Protocol (HART) only
- Position Transmitter (PTM) only
- Position Transmitter (PTM) and HART® Protocol (HART)

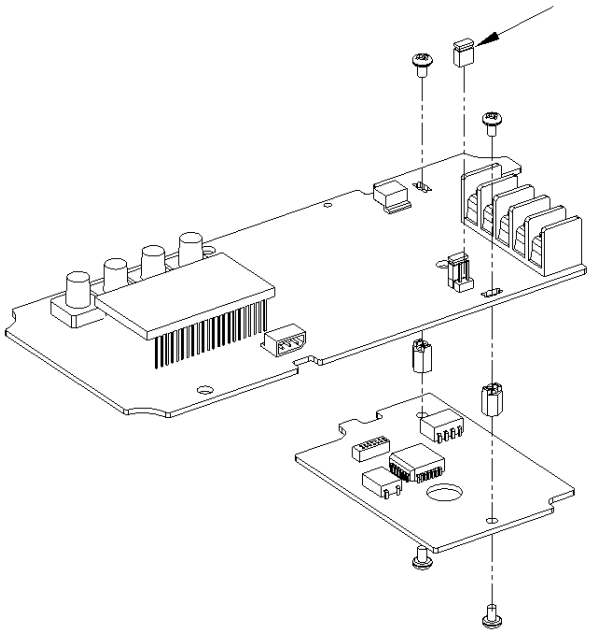
HART only

PTM only

PTM + HART

Installation Steps

1. Open the cover and remove the main PCB from the positioner.
2. Mount support PCB and plug sub-PCB into main PCB connector.



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**** Option Jumper must be removed, when HART® option included sub-PCB is being mounted.**

6 Operation

6.1 Safety

The following process will operate valve and actuator. Before proceeding with any AUTO Calibration, please separate valve from the entire system, so AUTO Calibration will not affect entire process.

6.2 Button Description

The positioner has 4 buttons, and they perform various functions.

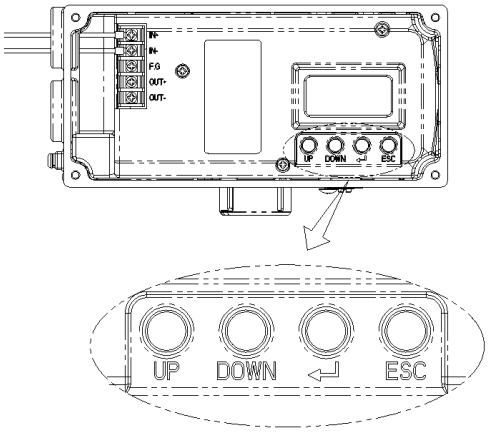
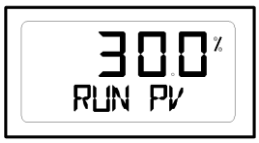


Fig. 11:

<ENTER>:	Enter to main and sub menus, and save
<ESC>:	Return to previous menu
<UP> & <DOWN>:	Move to next menu, and adjust.

6.3 Run Mode (RUN)

After connecting power to the positioner, Run Mode will appear on positioner's LCD screen within 6 seconds. "RUN" indicates that the positioner adjusts the valve stroke according to the receiving signal. There are six types of display message in "RUN" Mode.



1. Run PV: Process Value - valve stroke %
2. Run SV %: Set Value – input signal 0~100%
3. Run SV mA: Set Value – input signal 4~20mA
4. Run MV: Manipulate Valve – Motor Manipulate Value (digit)
5. Run Vel: Velocity – Current valve stem's velocity (digit)
6. Run Err: Error – Difference between SV and PV (%)

To change display, push <ESC> + <UP> buttons at the same time. The display will change in the order indicated above. If <ESC> + <DOWN> pushed, the order will appear in reverse order. By pressing <ESC>, the display will return to "RUN" mode.

6.3.1 Auto Calibration (AUTO CAL)

Auto Calibration (AUTO CAL) automatically calibrates the positioner. “AUTO CAL” process takes about 2~3 minutes, and the duration of the process varies upon the size of the actuator. There are 3 types of AUTO CAL.

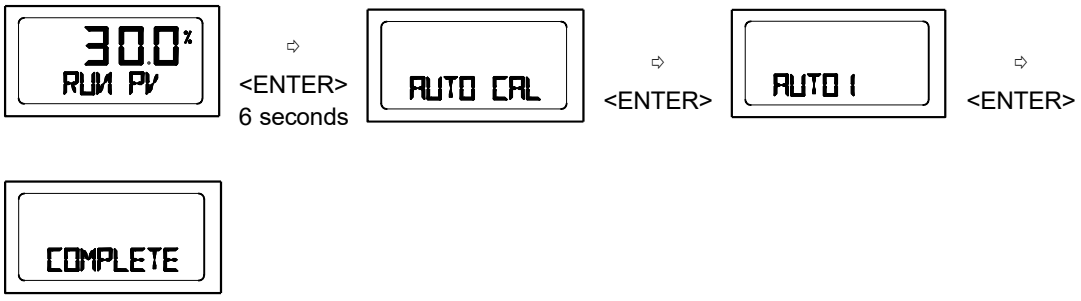
	Zero Point	End Point	KP, KI, KD	RA / DA	BIAS	V_D
AUTO 1	●	●	-	-	-	-
AUTO 2	●	●	●	●	●	●
AUTO HF	●	●	●	●	●	●
BIAS	-	-	-	-	●	-

(HF = High Friction)

It is recommend to perform AUTO2 calibration for initial positioner setting.

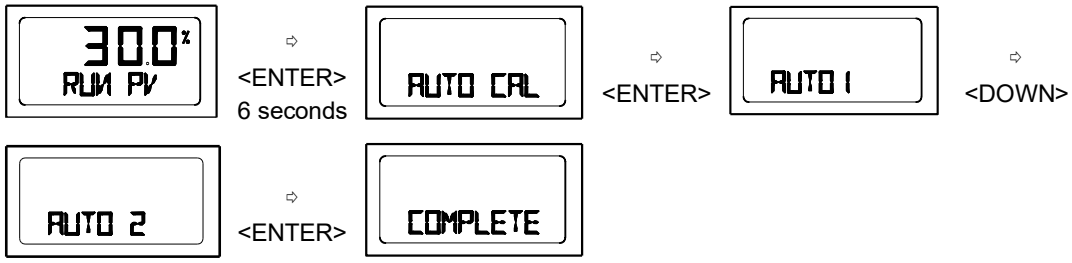
6.3.1.1 AUTO1 Calibration (AUTO1)

AUTO1 changes zero and end points; however, KP, KI, KD will not be adjusted. It is recommended to perform AUTO1 when the positioner has been set by the valve manufacturer already, and the field user wants to re-calibrate the positioner.



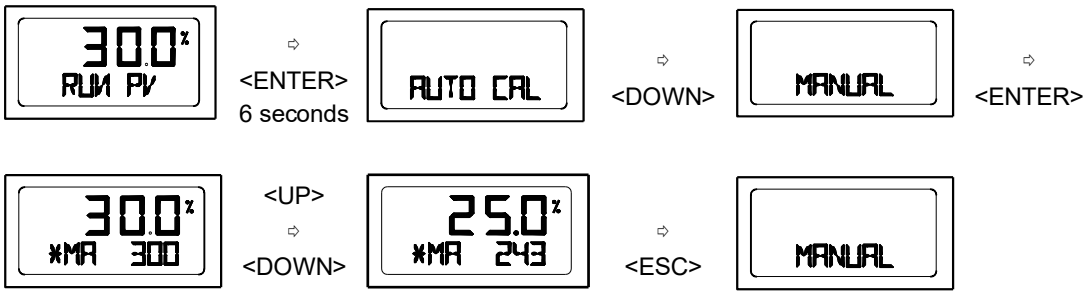
6.3.1.2 AUTO2 Calibration (AUTO2)

AUTO2 changes all of the parameters. It is recommended to perform AUTO2 when the positioner has been installed on the valve for the first time.



6.3.2 Manual Mode (MANUAL)

Manual mode is used to maneuver the valve stem manually. During "MANUAL", the positioner bypasses the supply air to the actuator. The movement of the stroke does not affect the positioner's save data values.



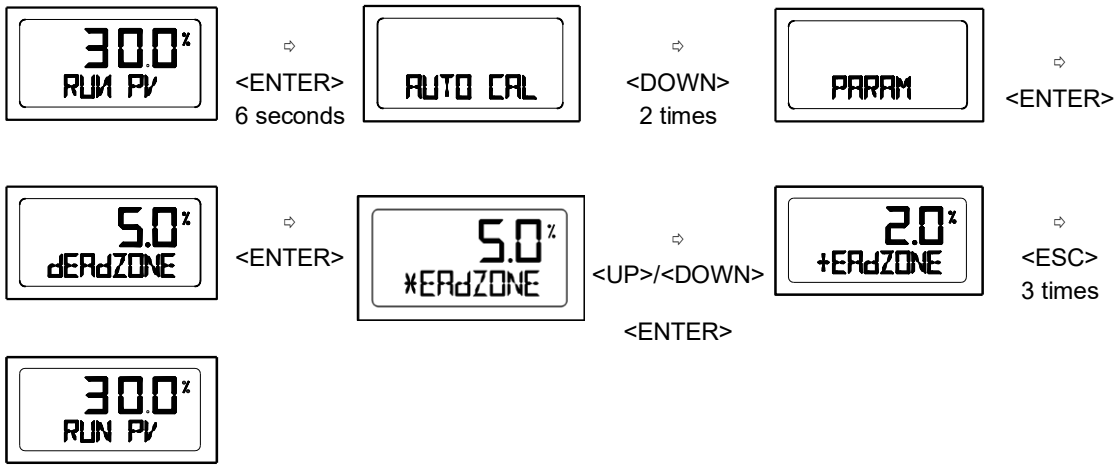
6.3.3 Parameter Mode (PARAM)

AUTO CAL optimizes most of the valve actuator control values. However, in some instances, hunting or oscillation may occur when the valve actuator control values are not optimized. Hunting or oscillation can be prevented by adjusting parameter values.

Once parameter values have been changed, the changed values are affective as soon as you save the value. To save the changes, please ensure to press the "ENTER" button. There is no need to go back to "RUN" mode after changes have been made to observe the changes.

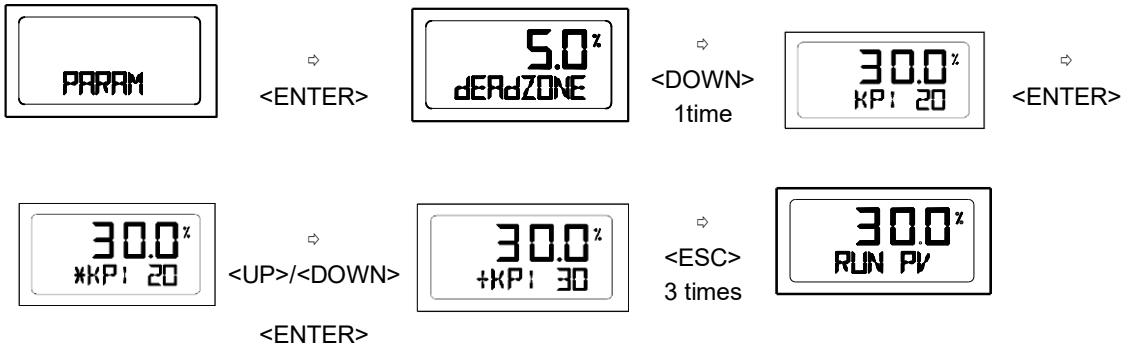
6.3.3.1 Dead-Zone

Dead-Zone indicates the percentage of error allowance. In case of high level of packing friction, which may cause hunting, creating Dead-Zone can stabilize the valve operation



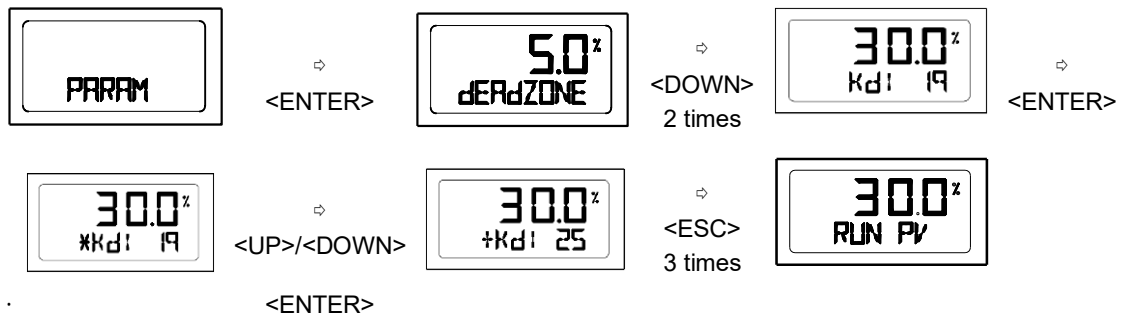
6.3.3.2 P value (KP)

P value indicates the ratio of the compensation signal based on the percentage of error allowance. As the value increase, the positioner finds the target value quicker, but it is more likely to cause hunting.



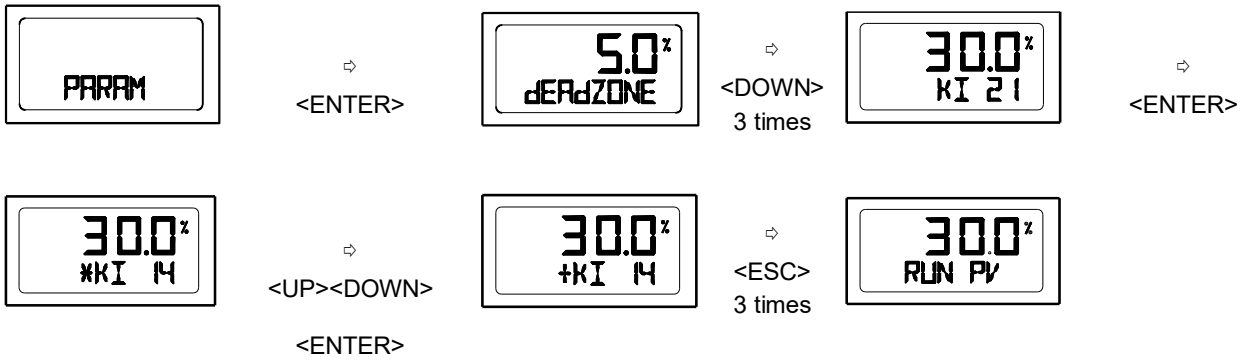
6.3.3.3 D value (Kd)

D value indicates the derivative value of the compensation signal based on the percentage of error allowance. As the value increase, it is more likely to cause hunting. As the value decreases, it can cause poor linearity.



6.3.3.4 I value (KI)

I value indicates the additional compensation signal based on the percentage of error allowance. As the value increase, it is more likely to cause hunting. As the value decreases, the positioner will move slower to the target position.



6.3.3.5 P_ (KP_), D_(Kd_) , I_(KI_) values

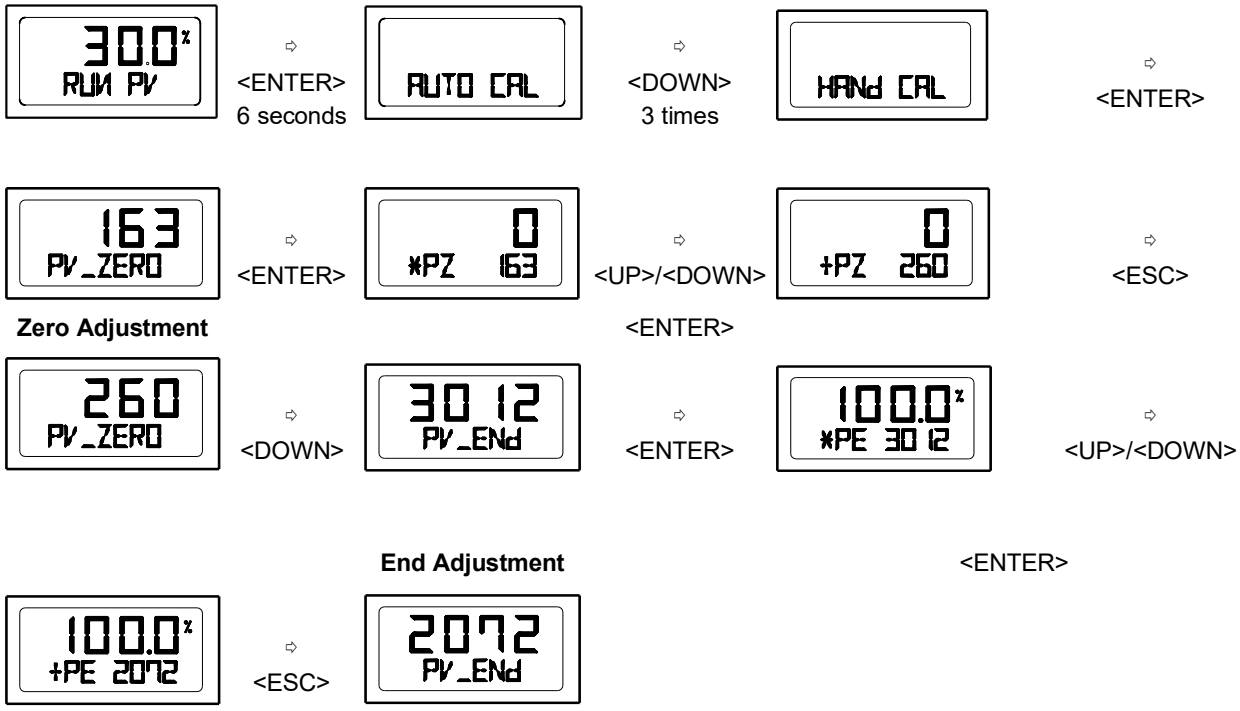
P_, D_, and I_ values' are principly the same as the P, D, and I values, but these values will be activated when the error percentage is within 1%.

6.3.4 Hand Calibration Mode (HAND CAL)

The positioner can be manually calibrated by entering into Hand Calibration Mode.

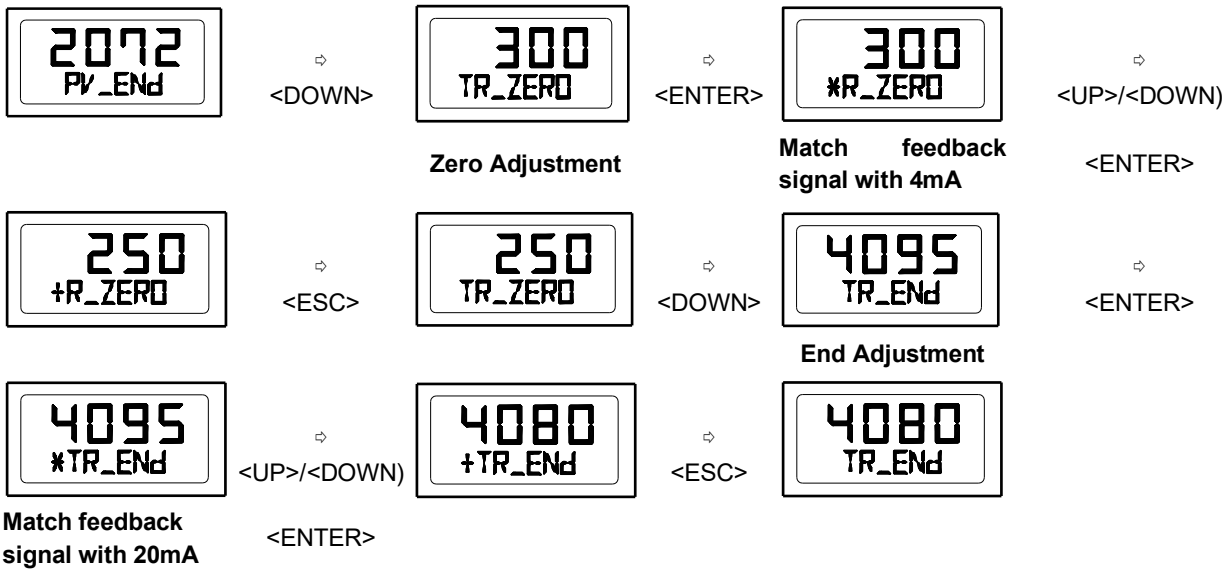
6.3.4.1 Zero-Point (PV_ZERO) and End-Point (PV_END) for Valves

PZ_ZERO adjusts the zero point of the valve, and PV_END adjusts the end point of the valve.



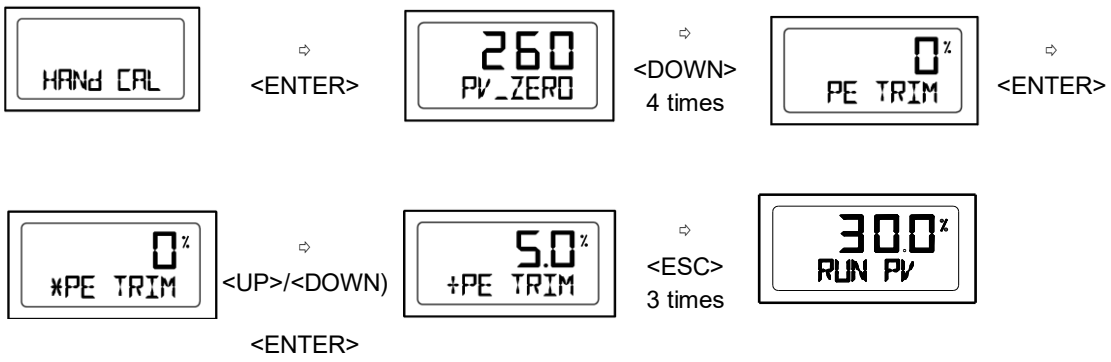
6.3.4.2 Zero-Point (TR_ZERO) and End-Point (TR_END) for Transmitter

TR_ZERO adjusts the zero point of the transmitter (4-20mA feedback), and TR_END adjusts the end point of the transmitter (4-20mA feedback)



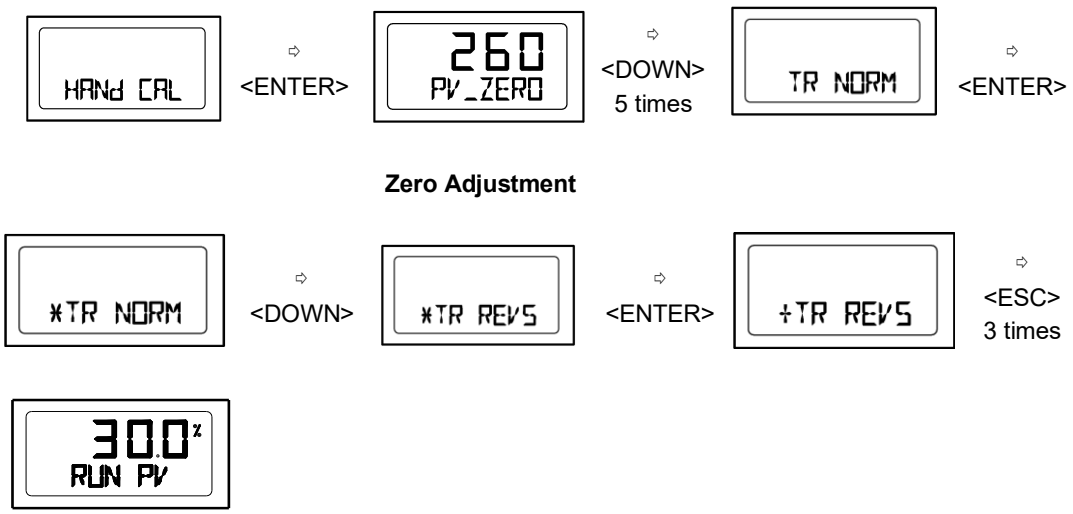
6.3.4.3 End-Point Ratio for Valve (PE_TRIM)

When reverse acting operating is used, End-Point can be adjusted within 10% of total valve stroke, without adjusting the valve's zero point.



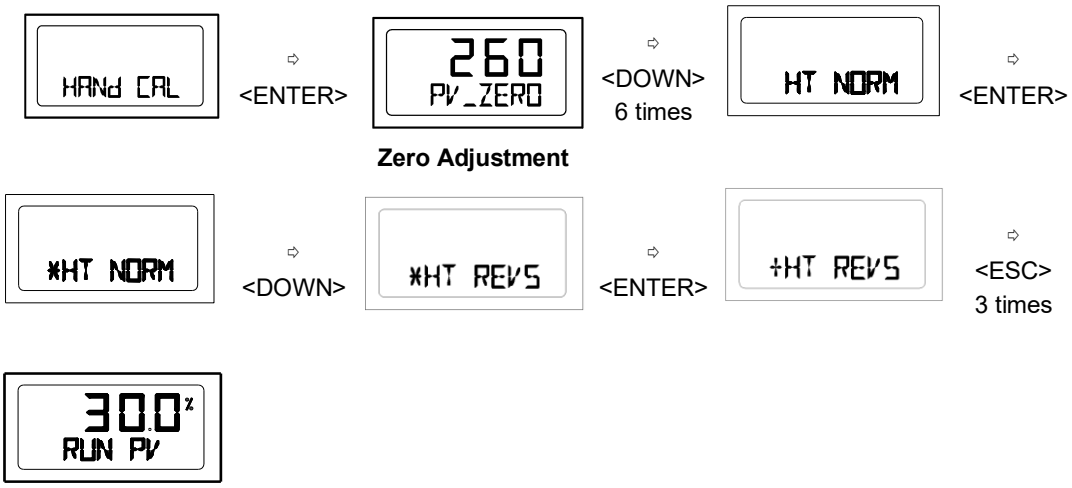
6.3.4.4 Normal / Reverse Feedback Signal (TR_NORM / REV)

The feedback signal from the positioner can be viewed as normal or as reverse.



6.3.4.5 Normal / Reverse HART® Signal (HT_NORM / REVS)

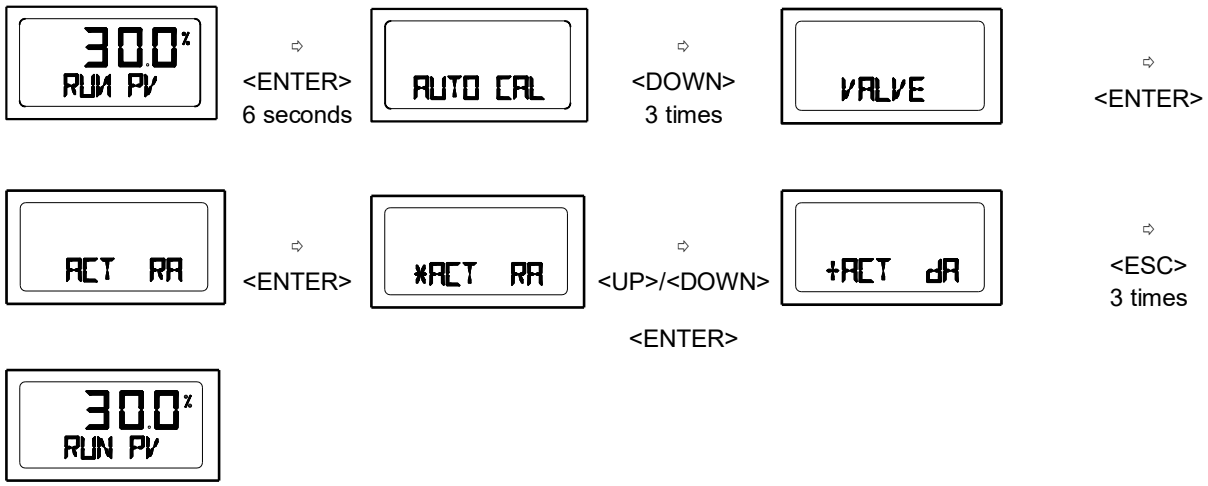
HART® signal from the positioner can be viewed as normal or as reverse.



6.3.5 Valve Mode (VALVE)

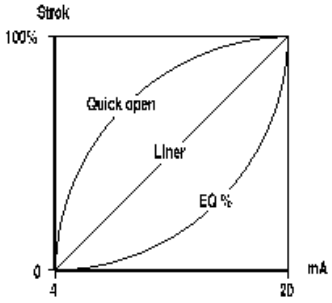
6.3.5.1 Acting Adjustment (ACT)

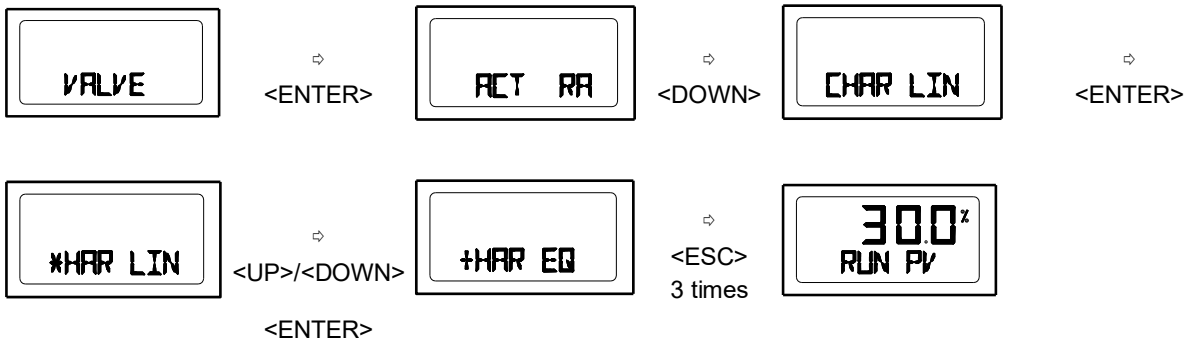
The positioner can be set as Direct Action (DA) or Reverse Action (RA).



6.3.5.2 Characteristic Adjustment (CHAR)

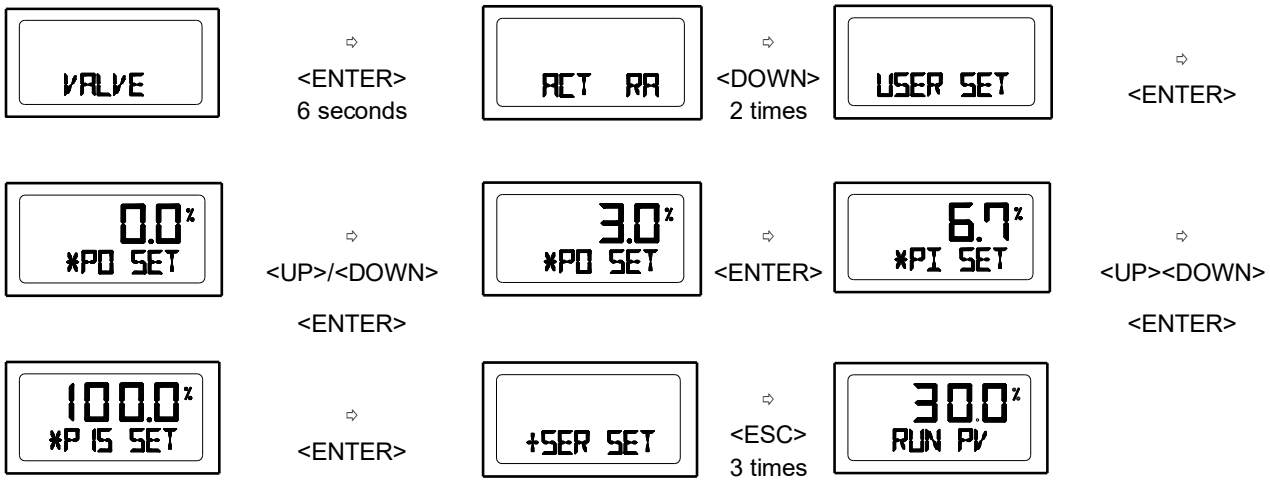
The valve characteristic can be set on the field's requirement. There are 3 types of characteristics – linear (LIN), equal percentage (EQ), and quick open (QO).





6.3.5.3 User Characteristics (USER SET)

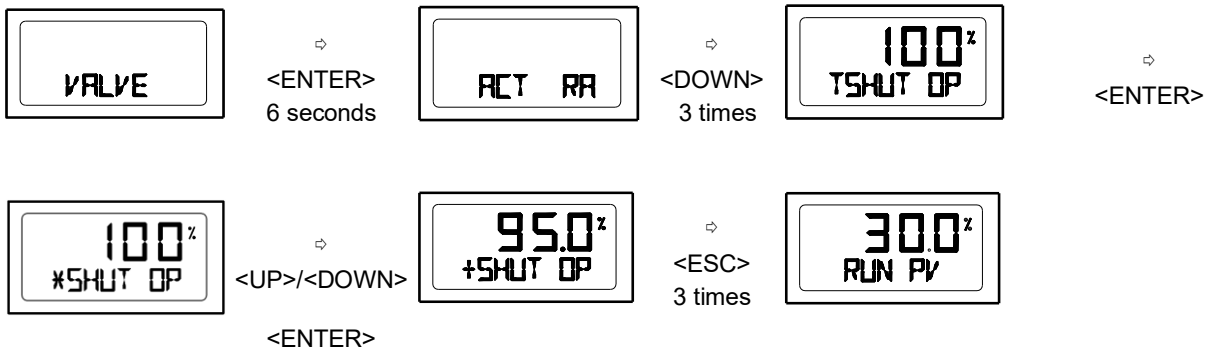
In case the positioner requires a specific characteristic, a custom valve characteristic curve can be made by selecting up to 16 points of the curve.



Repeat step if necessary

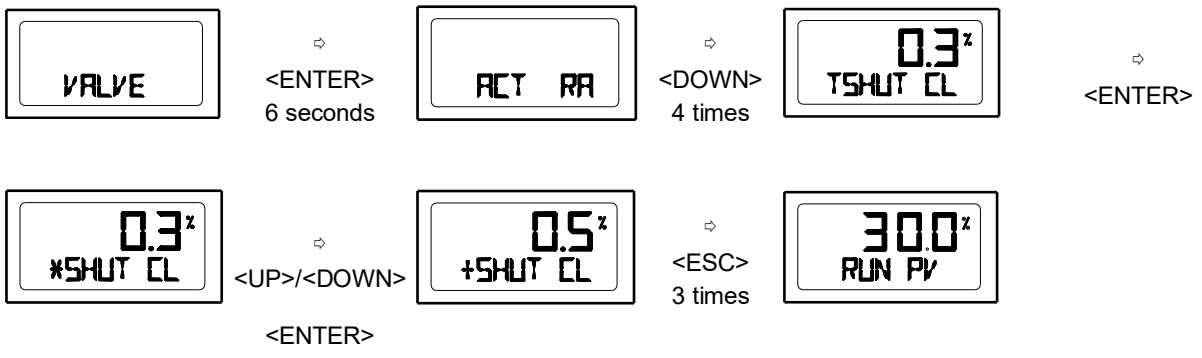
6.3.5.4 Tight Shut Open (TSHUT OP)

Tight Shut Open allows the valve to open completely as the input signal reaches around 20mA.



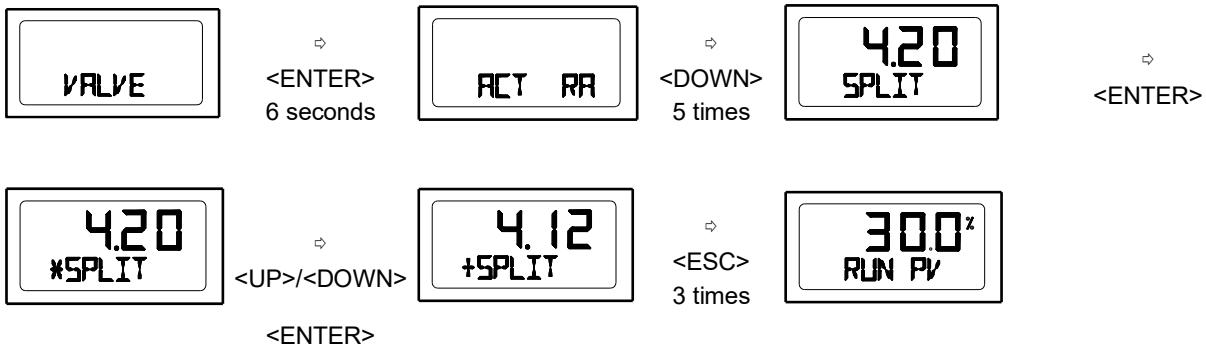
6.3.5.5 Tight Shut Close (TSHUT CL)

Tight Shut Close allows the valve to close completely as the input signal reaches around 4mA.



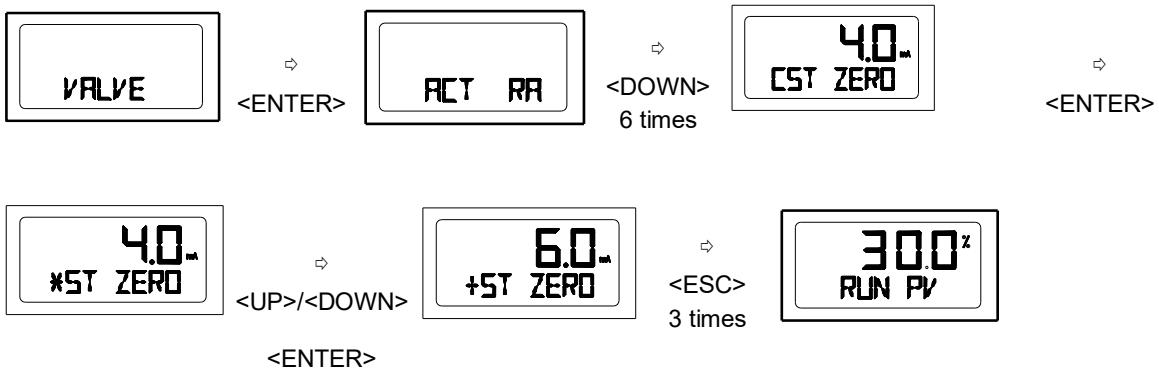
6.3.5.6 Split Range Mode (SPLIT)

The valve can be operated by split range control – 4~12mA or 12~20mA.



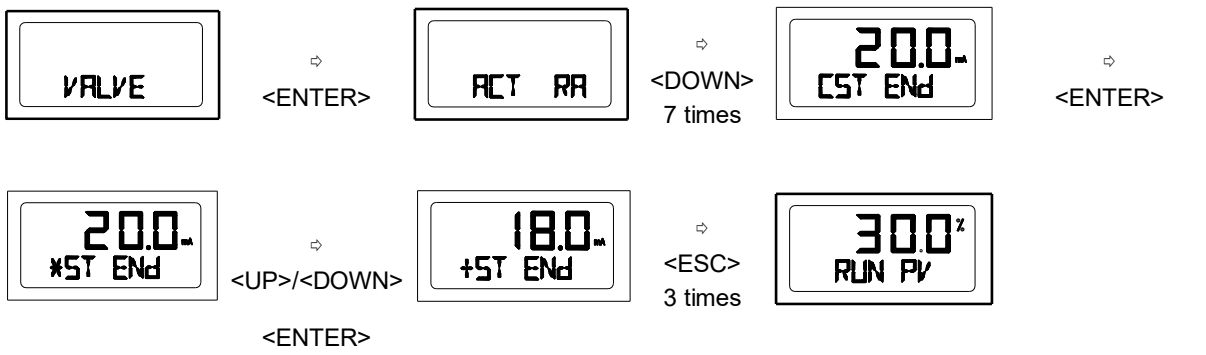
6.3.5.7 Custom Zero Setting Mode (CST ZERO)

Custom Zero Setting Mode allows the user to set any specific point as zero position. For example, the zero point can be set at input signal of 7mA.



6.3.5.8 Custom End Setting Mode (CST ENd)

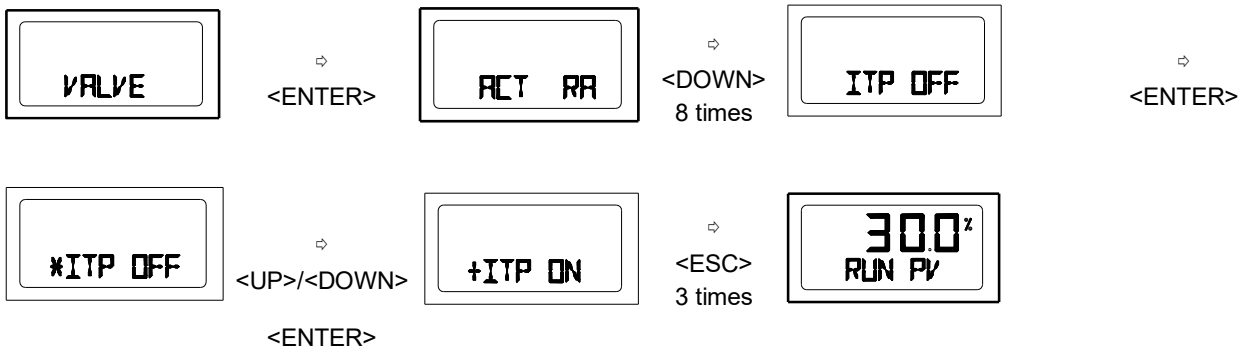
Custom End Setting Mode allows the user to set any specific point as end position. For example, the end point can be set at input signal of 11mA. **The difference between zero and end point must be greater or equal to 4mA.**



6.3.5.9 Interpolation Mode (ITP OFF / ON)

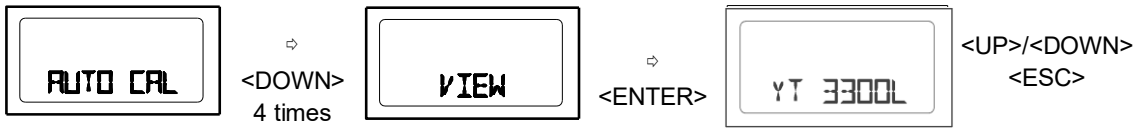
Positioner can control the valve accurately if the feedback lever angle range is within designed range.

For some instance, the angle exceeds the suggested range angle. Positioner can reduce the error through interpolation.



6.3.6 View Mode (VIEW)

Different information can be shown on the positioner's LCD.



	Description
3300	Positioner model
VERSION	Main software version
HART V	HART® protocol version
POL AddR	HART® protocol channel address
bIAS 25	BIAS value when valve position is at 25%
bIAS 75	BIAS value when valve position is at 75%
0Y 0d	Total used time duration. If a unit was used less than 1 minute, the time will not accumulate.
FULL_OP	Time elapsed for valve to fully open
FULL_CL	Time elapsed for valve to fully close.
VM NOR	Type of valve stroke on LCD. (in percentage or in value)
Erro	Error code or warning message.

VALUE I	Current I value
ABS	Absolute resistance value.

7 Error and Warning Codes

7.1 Error codes

Error Code	Code Description and Cause	Action
MT ERR L	➢ Positioner is improperly installed. ➢ Positioner is not parallel to the ground at 50% point. Lever is at lower position than actual 50% point.	➢ Re-install the positioner. ➢ Ensure the feedback lever does not touch the lever stopper at 0% and 100%.
MT ERR H	➢ Positioner is improperly installed. ➢ Positioner is not parallel to the ground at 50% point. Lever is at higher position than actual 50% point.	➢ Re-install the positioner. ➢ Ensure the feedback leer does not touch the lever stopper at 0% and 100%.
CHK AIR	➢ Valve does not operate when positioner receive “Full Open” signal during the auto calibration.	➢ Check supply pressure level.
RNG ERR	➢ Operating angle is too small due to improper positioner installation.	➢ Adjust bracket so the positioner can be mounted closer to actuator.
C	Error of 10% or more persists more than 1 minute. ➢ No valve movement. ➢ High level of valve friction ➢ Changes in setting pressure of actuator.	➢ Perform AUTO HF / BIAS calibration. ➢ Check setting pressure of actuator.
D	I-value reaches at maximum or minimum limit. ➢ Changes in valve friction. ➢ Changes in setting pressure of actuator.	➢ Perform AUTO HF calibration. ➢ Check setting pressure of actuator.

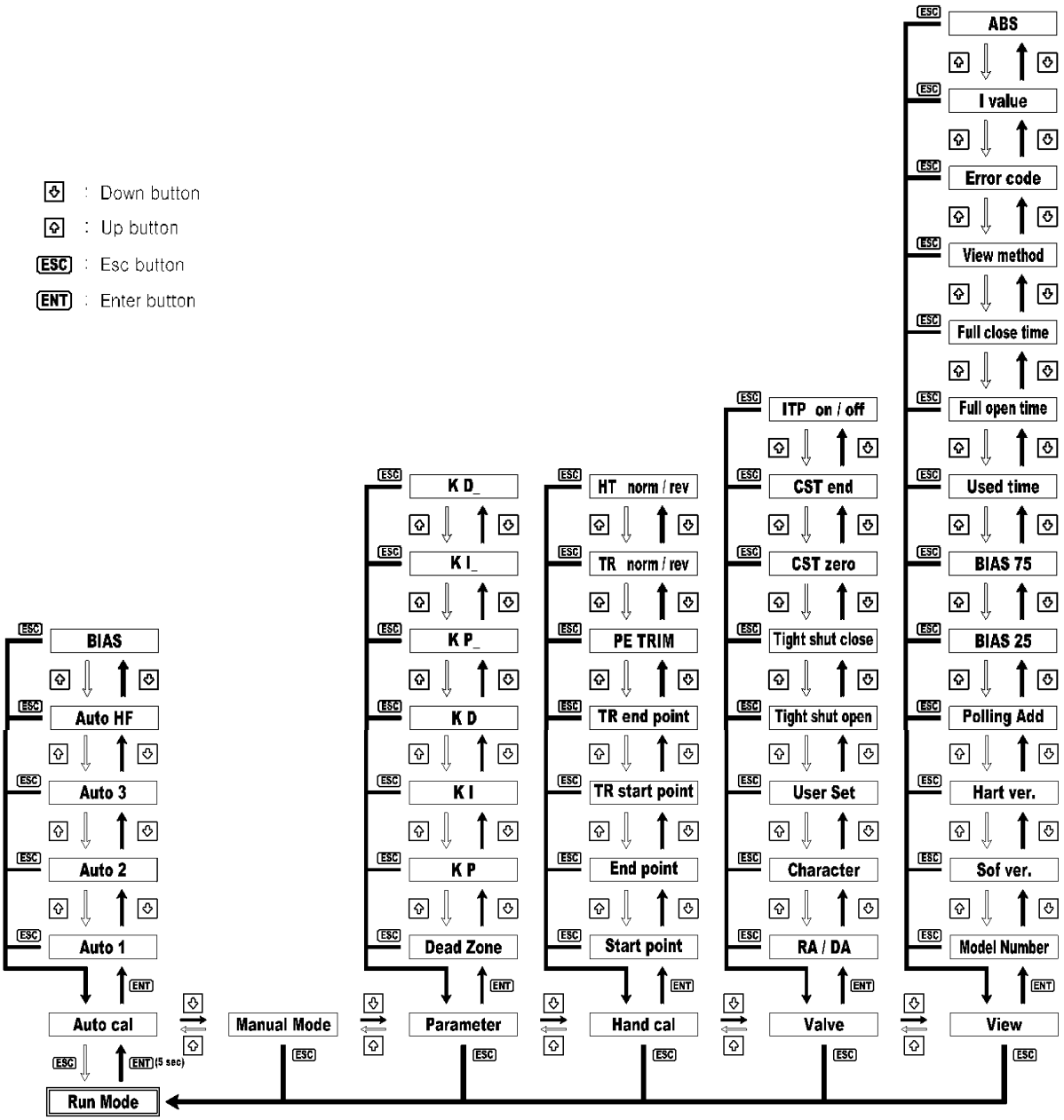
7.2 Warning codes

Warning Code	Description	Action

B	➢ Pv Span – Pv Zero range is below 500. ➢ The angle of feedback lever is too small.	➢ Re-install the positioner. ➢ Ensure the feedback lever does not touch the lever stopper at 0% and 100%. ➢ After re-installation, perform AUTO1.
F	➢ Full open/close elapsed time is less than 1 second. ➢ Actuator size is too small.	➢ Use variable orifice. ➢ Use larger actuator.
G	➢ Pv is below 100. ➢ The angle of feedback lever is too large.	➢ Re-install the positioner. ➢ Ensure the feedback lever does not touch the lever stopper at 0% and 100%. ➢ After re-installation, perform AUTO1
H	➢ Pv is over 4000. ➢ The angle of feedback lever is too large.	➢ Re-install the positioner. ➢ Ensure the feedback lever does not touch the lever stopper at 0% and 100%. ➢ After re-installation, perform AUTO1

.

8 Software Map



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9 Manufacturer contact details:

If you have questions about this product,
Please contact the nearest ECON distributor.
You can find them on www.eriks.com

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