

BRACKET KIT PN TGX:16152-1215

15900-794

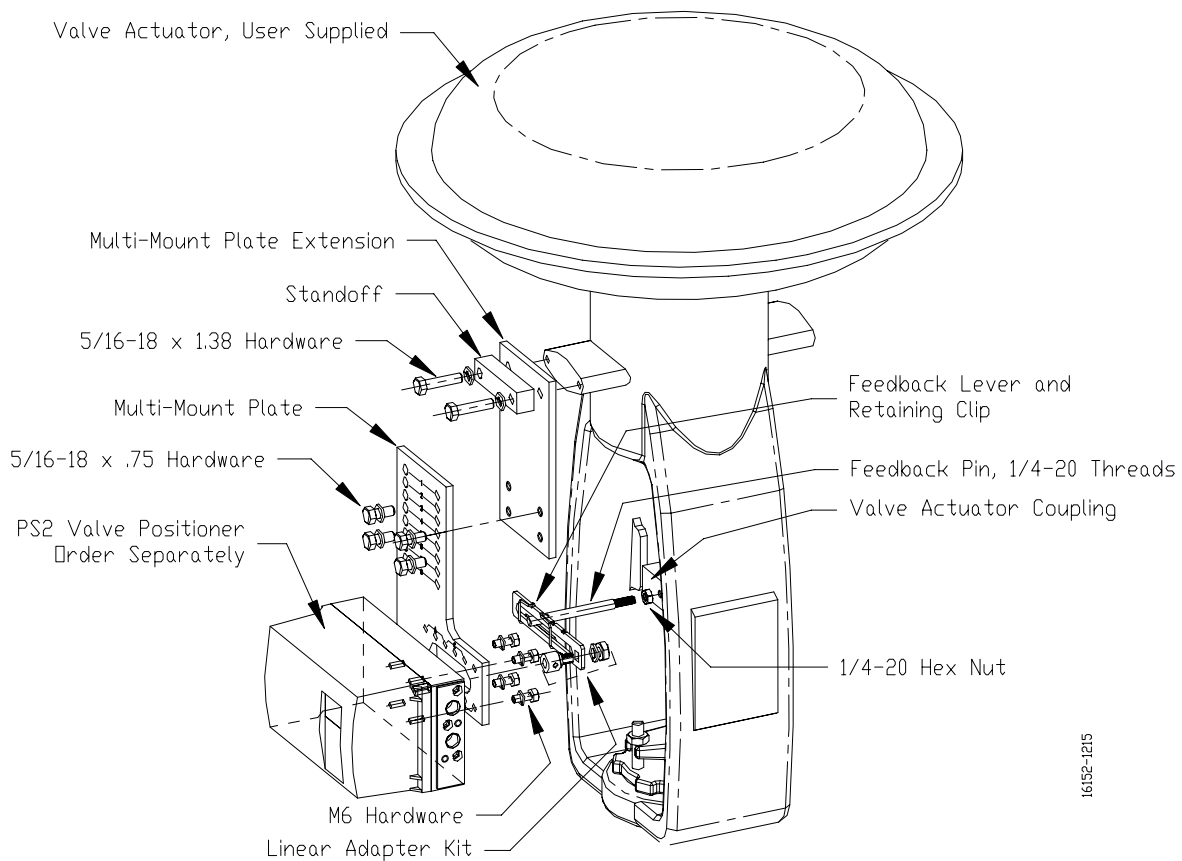
Rev 3

April 2013

SIPART PS2 Mounting Bracket Kit for Masoneilan 37/38 Valve Actuator

This publication provides installation instructions to mount a Siemens SIPART PS2 valve positioner on a Masoneilan 37/38 valve actuator and to install the mechanical feedback linkage. Typical installations are shown in Figures 1 and 2.

Bracket kit parts are shown on Pages 2 and 3. Page 4 has a table in which actuator travel is related to two installation parameters. This data is needed during installation. Installation procedures begin on page 4. Initial PS2 setup is found on page 9. Customer/product support is located on page 12.



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FIGURE 1 Actuator with Shaft Coupling, Exploded View

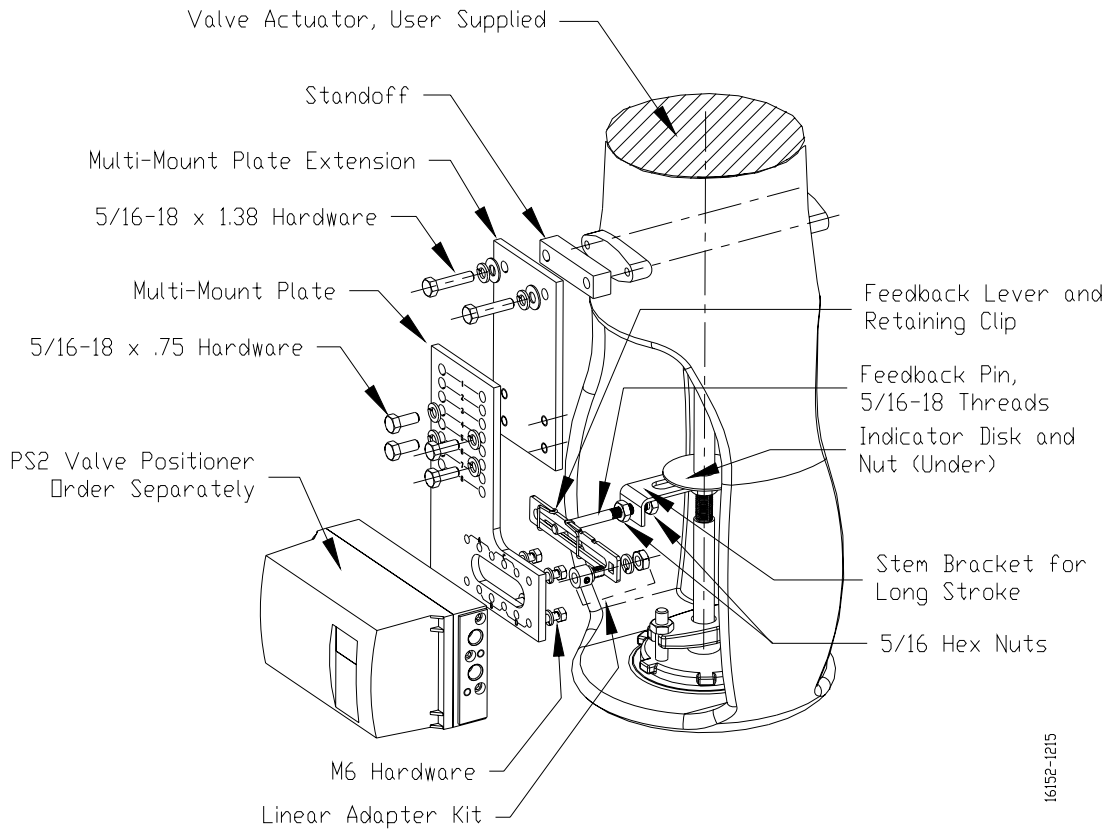
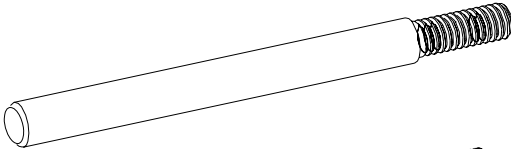
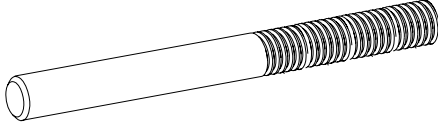
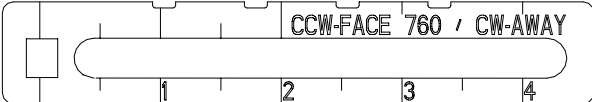
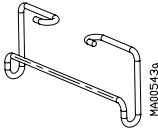
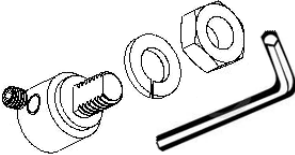

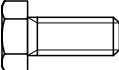
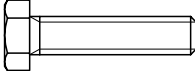
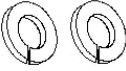

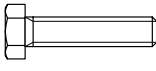



FIGURE 2 Actuator with Indicator Disk, Exploded View

PARTS, BRACKET KIT TGX:16152-1215

Description	Part Illustration, Not Shown to Scale	Qty/Kit
Multi-Mount Plate		1
Multi-Mount Plate Extension		1
Standoff		1
Stem Bracket, for Actuator with Indicator Disk		1

Description	Part Illustration, Not Shown to Scale	Qty/Kit
3.78" long Feedback Pin, 1/4-20 Threads, for Actuator with Coupling		1
3.25" long Feedback Pin, 5/16-18 Threads, for Actuator with Indicator Disk		1
4" Feedback Lever		1
Retaining Clip		1
Linear Adapter Kit		1
1/4-20 Hex Nut, for Actuator with Coupling		1
5/16-18 x .75 Hex Head Screw		4
5/16-18 x 1.38 Hex Head Screws		2
5/16 Lockwashers		6
5/16-18 Nut, for Actuator with Indicator Disk		2
M6 x 16 Hex Head Screws		4
M6 Lockwashers		4
Kit Installation Instruction, this publication, PN 15900-794		1

ACTUATOR SIZE AND TRAVEL

Actuator size and travel appear on the actuator nameplate. The table below relates valve travel to feedback lever retaining clip position and to a positioner mounting hole pattern in the multi-mount plate.

TABLE 1 Actuator Size and Travel

Valve Travel (inches)	Retaining Clip Location	Positioner Mounting Hole Pattern
1/4" Through 1/2"	1	A
3/4" Through 7/8"	2	B
1" Through 1-1/4"	3	C
1-1/2" Through 1-3/4"	3	D
2"	1	A
2-1/2" Through 3"	2	B
3-1/2" Through 4-1/2"	3	C
5" Through 6-1/2"	3	D

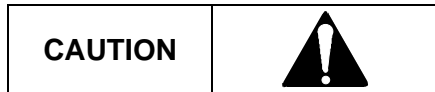
IMPORTANT

If the actual valve travel falls between the longest travel in a row and the shortest travel in the next row, use the longer dimension to determine clip location and positioner mounting hole pattern. For example, for a travel of 5/8", see the 3/4" Through 7/8" row.

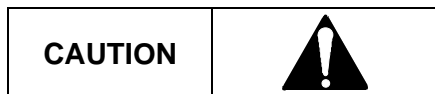
INSTALLATION

Refer to the following procedure and to the positioner and valve/actuator installation instructions while performing the installation. The current revision of the positioner instruction¹ is available for download at the Siemens Internet site. See Customer/Product Support later in this Instruction for the URL.

Before beginning the installation, note the following cautions.



Do not apply supply pressure to the actuator or the valve positioner during the installation process. Applying supply pressure before the equipment is properly mounted could cause unexpected movement that could lead to personal injury or equipment damage.



Do not exceed the maximum actuator and valve positioner air pressures stated in the manufacturer's literature. Exceeding these ratings could cause personal injury or equipment damage.

Before beginning the installation, open the supplied kit(s) and check the included parts against the parts list on pages 2 and 3 and Figures 1 and 2 on pages 1 and 2. Also, be sure the correct PS2 valve positioner and valve/actuator are at hand. Each kit installation section title is in **bold** print. Complete the steps in each section.

Some steps are dependent upon whether the actuator has a shaft coupling (Figure 1) or an indicator disk (Figure 2). These steps are identified in the procedure.

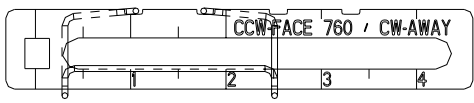
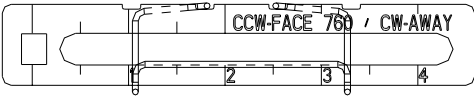
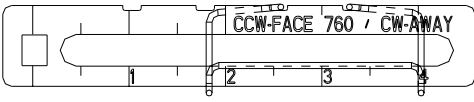
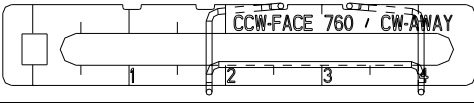
Common hand tools, including 10mm, 7/16" and 1/2" wrenches, will be needed.

¹ PS2: SIPART PS2 Electropneumatic Positioners for Linear and Rotary Actuators, P/N A5E00074631

Assemble Retaining Clip to Feedback Lever

1. In Table 1, find the valve travel for the actuator at hand. The retaining clip position number (1, 2, or 3) is shown to the right of the valve travel. In Table 2, find that number and note the position of the retaining clip in the adjacent sketch.

TABLE 2 Retaining Clip Location

Clip Position	Retaining Clip Location	Positioner Mounting Hole Pattern
1		A
2		B
3		C
3		D

2. Orient the feedback lever (text side facing you) and retaining clip as shown in Figure 3. Align the clip with the lever as shown in the selected row in Table 2. (For example, the clip location for a valve travel of 3/4" Through 7/8" is shown below.)
3. Press the lever into the clip and lift the two hooked ends of the clip until they can be placed in two notches in the lever and hook onto the lever. See Figure 4.

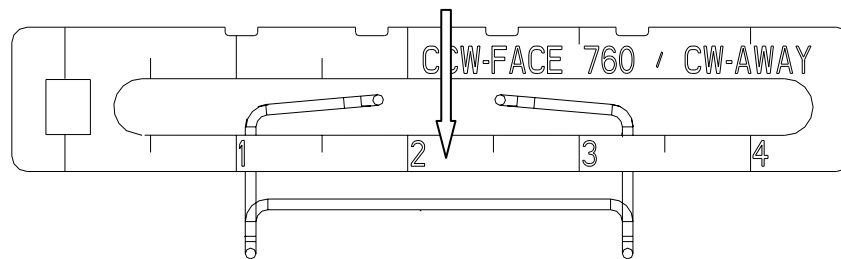


FIGURE 3 Pressing the Feedback Lever into the Retaining Clip

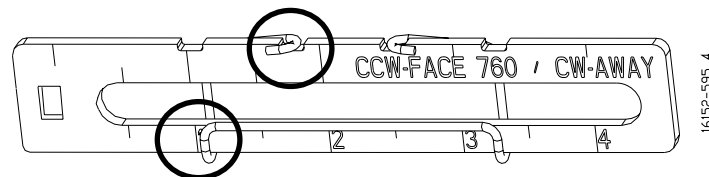
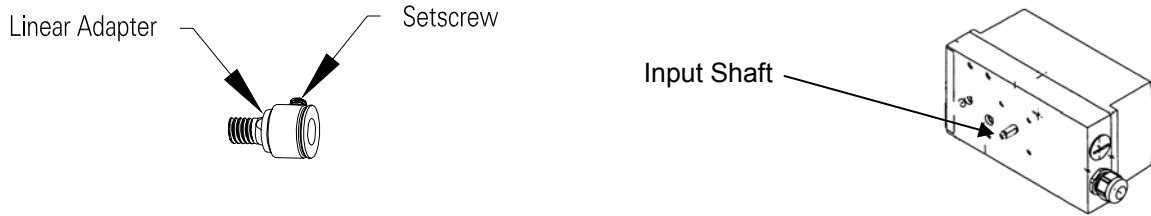


FIGURE 4 Placing the Retaining Clip on the Feedback Lever

Install the Linear Adapter on the Positioner Input Shaft

1. Using the supplied hex wrench, screw the setscrew into the linear adapter until the tip of the setscrew is just visible in the hole in the end of the adapter. See the drawing below, left.



2. The PS2 input shaft is shown above, right. It extends from the bottom of the positioner and is flat on one side. Place the linear adapter on the PS2 input shaft so the setscrew can be tightened against the flat on the input shaft. Tighten the setscrew securely.

Fasten the Multi-Mount Plate to the PS2

As shown in Figure 5, there are four sets of 4 positioner mounting holes in a square pattern: A, B, C and D. The example in Figure 5 locates the four “A” mounting holes. To install the plate, perform steps 1 and 2 below.

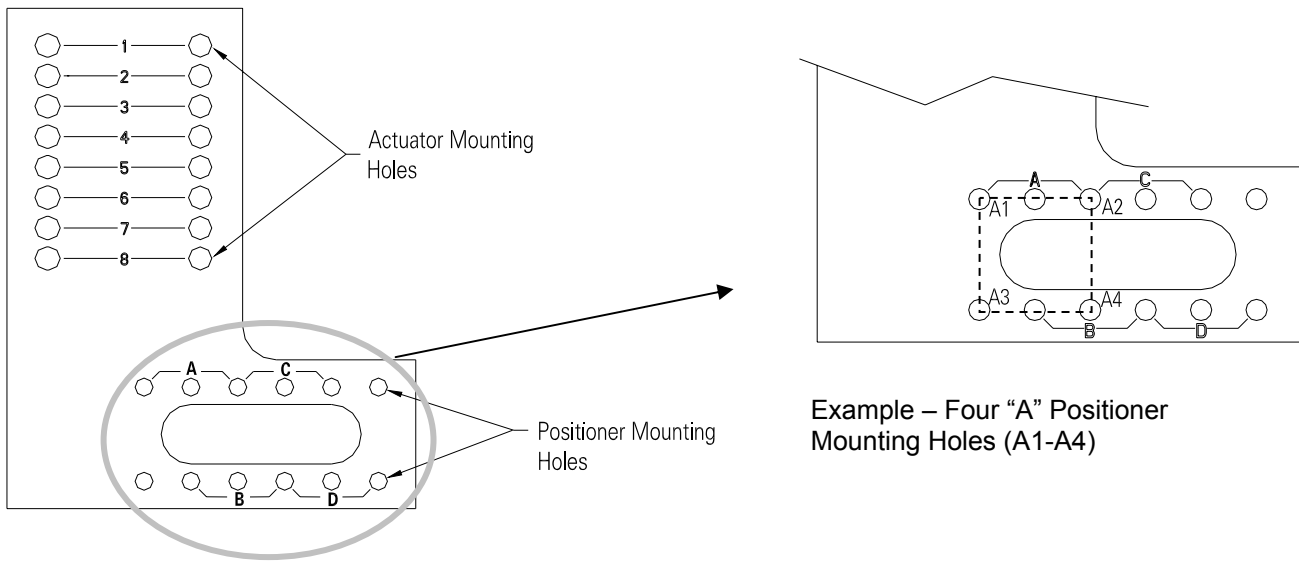


FIGURE 5 Multi-Mount Plate, Positioner Mounting Holes

1. Refer to Table 1 on page 4 for the valve travel and positioner mounting hole pattern *letter*.
2. Using the four holes with the *letter* from Table 1, fasten the multi-mount plate to the PS2 valve positioner with four M6 screws and lockwashers. See Figure 6 for plate and PS2 orientation.

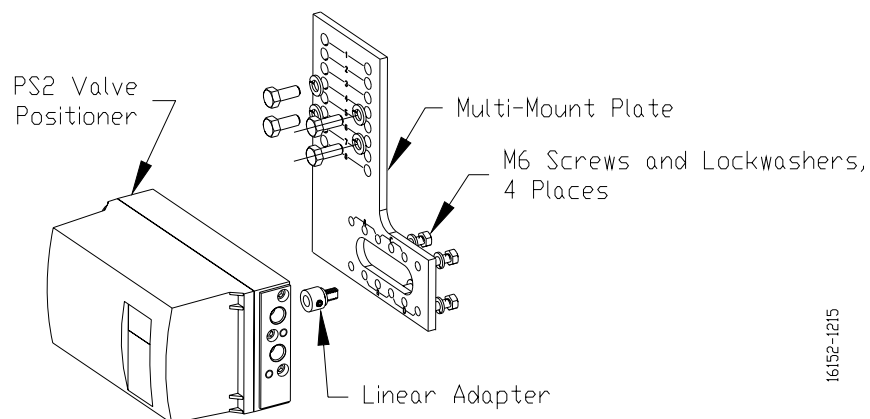


FIGURE 6 Fastening the Multi-Mount Plate to the PS2

Install the Feedback Lever on the Linear Adapter

Fasten the feedback lever to the linear adapter using the supplied split lockwasher and nut. See Figure 7.

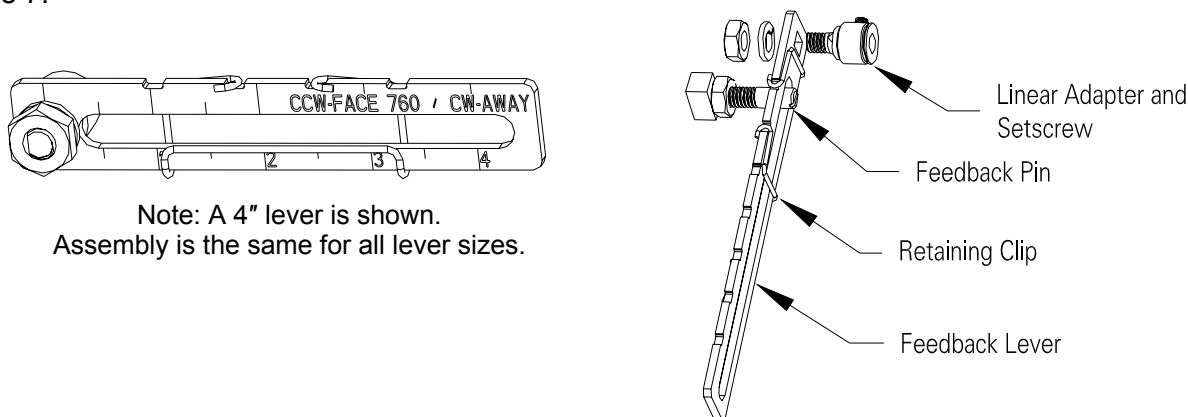


FIGURE 7 Feedback Lever and Retaining Clip Orientation

Select and Install a Feedback Pin on the Valve Actuator

Perform one of the bulleted steps below depending upon the actuator at hand.

- Actuator with Coupling – See Figure 1
 1. Thread a 1/4-20 hex nut as far as possible onto the 3.78" long feedback pin with 1/4-20 threads. (This nut will function as a lock nut after feedback pin length has been set.)
 2. Screw the feedback pin into the actuator coupler.
- Actuator with Indicator Disk – See Figure 2
 1. Thread a 5/16-18 hex nut about half way onto the 3.25" long feedback pin with 5/16-18 threads.
 2. Insert the threaded end of the feedback pin into the stem bracket as shown in Figure 2. Thread a 5/16-18 hex nut onto the feedback; gently tighten the nut against the stem bracket at this time. (The two nuts will later be adjusted to set feedback pin length.)
 3. Loosen the actuator stem nut and insert the stem bracket between the actuator position indicator and stem nut. Position the stem bracket so it is equidistant from the sides of the actuator. Hold the bracket in place and tighten the stem nut.

Install the Multi-Mount Plate and Extension on the Actuator

1. Fasten the multi-mount plate *extension* to the actuator. Perform one of the bulleted steps below depending upon the actuator at hand.
 - Actuator with Coupling – Refer to Figure 1. Pass the two 5/16-18 x 1.38" screws (with washers and lockwasher) through holes in the standoff, then through holes in the multi-mount plate extension. Thread the screws into the actuator.
 - Actuator with Indicator Disk – Refer to Figure 2. Pass the two 5/16-18 x 1.38" screws (with washers and lockwashers) through holes in the multi-mount plate extension, then through holes in the standoff. Thread the screws into the actuator.
2. Hold the multi-mount plate against the multi-mount plate extension and press the feedback lever over the feedback pin so the pin enters the slot in the lever and engages the retaining clip.
3. Adjust the position of the multi-mount plate so the feedback lever will be approximately perpendicular to the valve stem at the mid-stroke position. Align the holes in the plate with those in the extension and fasten the plate to the extension with four 5/16-18 x .75" screws and washers.
4. Check that the feedback pin extends through the feedback lever by at least 1/8". If necessary, adjust pin length so the pin extends through the feedback lever at least 1/8" and will not contact the mounting plate or other hardware throughout a complete valve stroke. Loosening or removing the 5/16-18 x .75" screws (see Step 3) will ease access to the pin and lock nut(s).
 - Actuator with Coupling – Loosen the 1/4-20 lock nut, rotate the feedback pin as necessary to achieve the desired length, and tighten the lock nut securely.
 - Actuator with Indicator Disk – Loosen the two 5/16-18 lock nuts, adjust feedback pin position as necessary to achieve the desired length, and tighten the lock nuts securely.
5. If loosened in Step 4, tighten the 5/16-18 x .75" screws securely. Check that the feedback pin extends beyond the feedback lever by at least 1/8" to ensure engagement. If it does not, repeat step 4.

Note: The feedback lever should be approximately perpendicular to the actuator shaft at mid-stroke. This should be confirmed during the Initial PS2 Setup, the next section, when supply air is applied to actuator and positioner.

6. Tighten all hardware.
7. Go to the Initial PS2 Setup section on the next page.

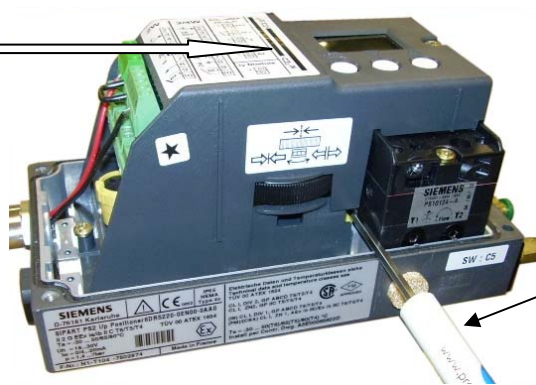
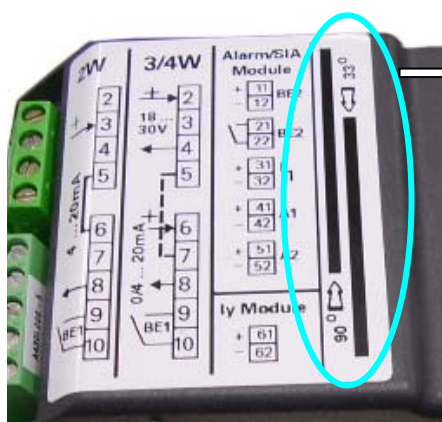
INITIAL PS2 SETUP

Perform the following steps to set the transmission gear ratio switch, apply instrument air and electrical power, and manipulate the three setup pushbuttons to initially set up the PS2. Read the Cautions on page 4 before proceeding.

1. Loosen the four captive screws securing the PS2 cover and remove the cover.
2. Refer to Table 3 for the transmission gear ratio switch setting: 33 or 90. Find the specified valve travel. Then find the ratio switch setting at the intersection of the valve travel row and the "positioner mounting hole letter" column.
3. Refer to Figures 8 and 10 and to the label on the PS2 to, if necessary, change the transmission ratio switch position.. Use a small screwdriver to shift the position of the slide switch.
4. Connect tubing from positioner output port, labeled "Y1" on positioner cover, to actuator inlet.
5. Connect tubing for instrument supply air to positioner supply port labeled "Pz". Apply air pressure. Do not exceed maximum casing pressure shown on actuator Warning label.
6. Connect a DC power source to positioner terminals; see Figure 8 for a typical electrical connection label. *Electrical connections vary with positioner model and options.* Apply electrical power.

TABLE 3 PS2 Transmission Gear Ratio Switch Setting

		Positioner Mounting Hole Pattern			
Valve Travel	Inches	A	B	C	D
	1/4"	33			
3/8"	33	33			
7/16"	33	33	33		
1/2"	33	33	33		
5/8"	90	33	33	33	
3/4"	90	33	33	33	
7/8"	90	33	33	33	
1"	90	33	33	33	
1-1/8"	90	90	33	33	
1-1/4"	90	90	33	33	
1-1/2"	90	90	90	33	
1-3/4"	90	90	90	90	
2"	90	90	90	90	
2-1/2"		90	90	90	
3"		90	90	90	
3-1/2"			90	90	
4"			90	90	
4-1/2"			90	90	
> 5"				90	



Use a small screwdriver to shift the yellow transmission gear switch from 33 to 90.

Shift from 90 to 33 from other side of PS2.

Transmission Gear Switch Settings

FIGURE 8 PS2 Transmission Gear Ratio Switch Location (PS2 Cover Removed)

7. If "NOINI" is flashing on display, skip to step 12, otherwise go to step 8. A typical configuration mode display is shown in Figure 9.

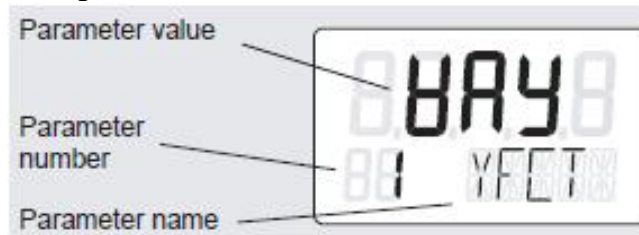


FIGURE 9 Sample PS2 Configuration Mode Display

8. Press and hold [HAND] button to enter configuration mode. When display changes, release button. See Figure 10.

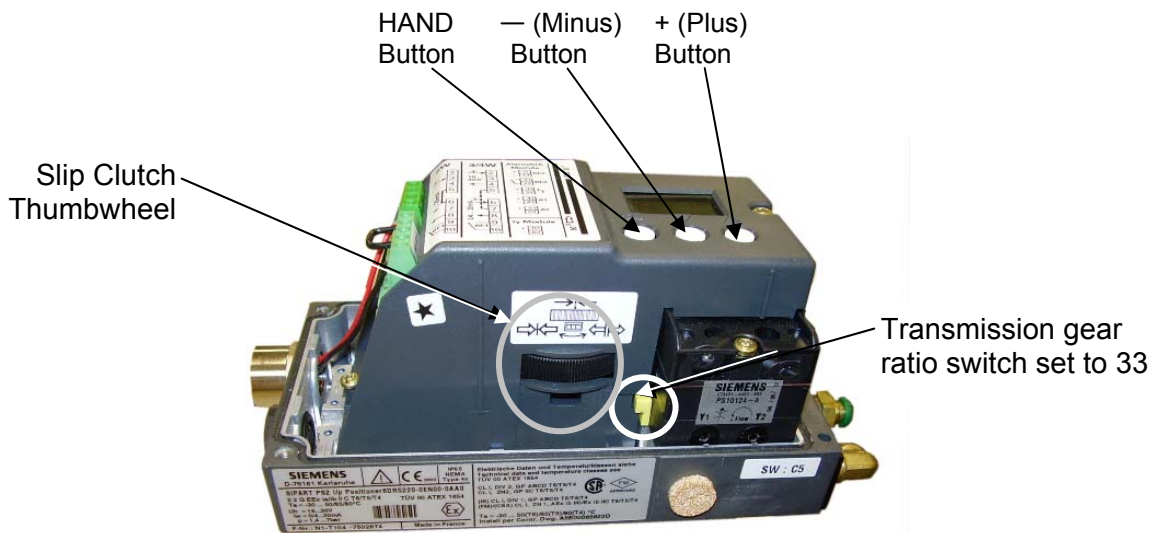


FIGURE 10 Set-up Buttons (PS2 Cover Removed)

9. Press and release [HAND] button until parameter 4 is displayed in lower left corner of display.
10. Press and hold [-] minus button until "no" appears on display.
11. Press and hold [HAND] button to exit configuration mode. When display changes, release button.
12. Using [+] plus and/or [-] minus buttons move valve throughout valve travel. While moving the valve with the pushbuttons, ensure that:
 - The feedback linkage does not prevent the valve from fully stroking. Adjust as needed.
 - The feedback pin moves freely within the feedback lever for the entire valve travel.
 - All hardware is tightened securely.

Note: To move quickly in one direction press and hold [+] plus button then [-] minus button. To move quickly in the opposite direction reverse button sequence.

13. Use a [+] or [-] button to move the valve to a position away from an end-stop. Verify that the valve remains at that position once buttons are released; if it moves check for air leaks.

14. Use the [+] and [-] buttons to move the valve to the mid-stroke position and release pushbuttons. Use the valve travel indicator plate on the actuator yoke to locate mid-stroke. At mid-stroke, the feedback lever should be approximately perpendicular to the actuator shaft. To reposition the lever, see the note below.

Note: To reposition the lever, remove the four 5/16-18 x 0.75" screws that secure the multi-mount plate to the extension. Shift the multi-mount plate until the lever is approximately perpendicular to the shaft. Align holes in the plate and extension and install the 5/16" screws.

15. Adjust slip clutch until display reads 50, +/-3.0. See Figure 10 for slip clutch location.
16. Press and hold [HAND] button to enter configuration mode; release button once display changes.
17. Verify that parameter 1 appears in the lower left corner of the display. If another parameter number appears, press and release the [HAND] button until parameter 1 appears.

Note: To move backwards in the menu, press and hold [HAND] button and toggle [-] minus button.

18. Verify that **RAY** appears in the display. If another parameter value appears, press and release the [+] or [-] button until **RAY** appears.
19. Press [HAND] button to go to parameter 2.
20. Read the transmission gear ratio setting in the display: 33 or 90. If necessary, use [+] or [-] button to change the value to actual gear ratio setting from steps 2 and 3 on page 9.
21. Press [HAND] button twice to go to parameter 4.
22. Press and hold [+] button to execute initialization process – release the button once the positioner begins to move the valve.
23. Initialization is complete once display reads "Finish". If setup messages appear, refer to the Possible Messages section of the Quick Setup Guide provided in the PS2 housing.
24. Press [HAND] button once.
25. Press and hold [HAND] button to exit configuration mode. Release button once display changes.
26. Press [HAND] button to enter "Auto" mode.
27. Test valve performance by changing the input signal.
28. As needed, modify other parameters to meet valve application specifications. The following parameter names are those that are commonly adjusted.
 - "SCUR" – Change positioner Direct/Reverse action [rise/fall]
 - "YDIR" – Change action of LCD display and 4-20 ma feedback (if so equipped)
 - "YCLS" – Activate Tight Closing; full supply air supplied to one side of actuator
 - "YCDO" – Input signal threshold value for tight closing, bottom position
 - "YCUP" – Input signal threshold value for tight closing, top position
 - "PRST" – Parameter reset: Return all parameters to factory default values
29. If needed, refer to the SIPART PS2 manual (see the footnote on page 4) for complete installation, configuration, and service information.

Once all setup steps are completed and the feedback arm moves freely for the entire stroke, make any additional electrical connections.

CUSTOMER/PRODUCT SUPPORT

For support and the location of your local Siemens representative, refer to the table below for the URL of the Process Instrumentation portion of the Siemens public Internet site. Once at the site, click **Support** in the right column and then **Product Support**. Next select the type of support desired: sales, technical (see the table below), documentation, or software.

Online Support Request	http://www.siemens.com/automation/support-request
Technical Support	1-800-333-7421; 8 a.m. to 4:45 p.m. eastern time, Monday through Friday (except holidays)
Customer Service & Returns	1-800-365-8766 (warranty and non-warranty)
Public Internet Site	http://www.usa.siemens.com/pi
Technical Publications in PDF	Click the above link to go to the Siemens Internet site and then click Process Instrumentation . In the column to the right, click Support > Manuals . In the column to the left, select the product line (e.g. Pressure or Temperature or Controllers) to open navigation and search panes.

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