

READ THESE INSTRUCTIONS CAREFULLY BEFORE INSTALLING OR CONNECTING ELECTRICAL OR AIR TO THE POSITIONER. POSITIONER SHOULD BE INSTALLED AND SERVICED BY A QUALIFIED TECHNICIAN.

INTRODUCTION

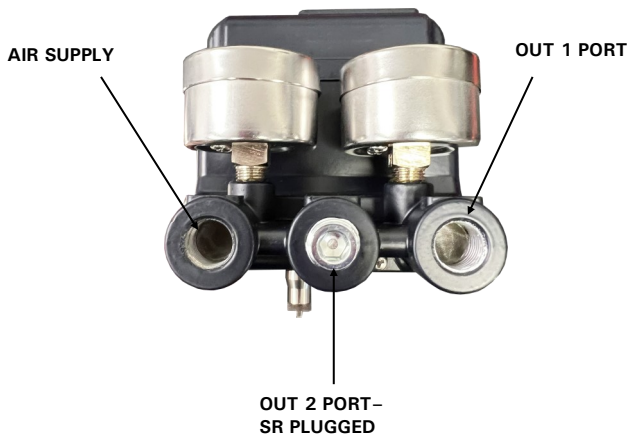
This document provides installation, operation and maintenance instructions for Valworx 5298DSP series valve positioners. These positioners are rated IP66 weatherproof and designed for non-hazardous applications. It is the installer's responsibility to ensure fitness for use.

DESCRIPTION

Valworx 5298 digital smart valve positioners convert a 4-20mA input control signal to a proportional pneumatic output. This output is fed to a 90 degree rotary type air actuator, which in turn, controls the valve position. Valworx positioners offer fast and accurate control of ball valves, butterfly valves and other type valves. These positioners direct mount to air actuators with the standard VDI / VDE-3845 Namur type top shaft mounting. Universal NAMUR mounting bracket kit is included with each positioner.

AIR SUPPLY CONNECTION

Connect a 20-100 PSI compressed air supply to the 1/4" NPT inlet port. Supply pressure is determined by actuator size. Most Valworx air actuated valve assemblies require 80-100 PSI. The compressed air should be instrument quality; filtered, dry and oil-free. Recommended to set supply air pressure 10% higher than the actual operating pressure of the actuator. Typically, an air filter-regulator is used to maintain a constant inlet pressure. Gauge ports are 1/8" NPT.



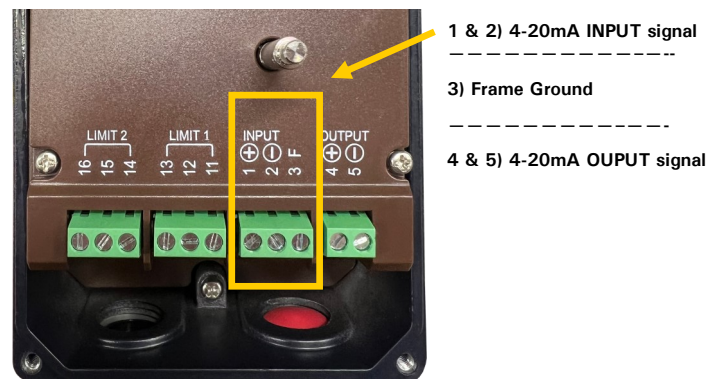
Sample images of digital smart positioner installed on Double Acting Rack & Pinion pneumatic actuator (LEFT) and a Spring Return Scotch Yoke. (RIGHT)



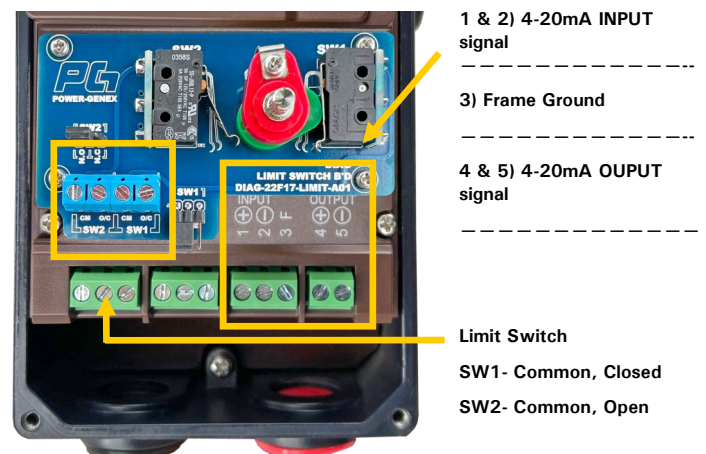
ELECTRICAL WIRING CONNECTION

Connect a 4-20mA analog control signal to the INPUT(+) and (-) screw terminals located under the positioner cover (maximum impedance 250 ohms). Electrical conduit connection is 1/2 NPT female. The variable control signal will position the actuator (valve) anywhere between closed and open. The actuator (valve) will be CLOSED with a 4mA signal and OPEN with a 20mA signal.

*If purchased with Limit Switch option, installer should also wire SW1 & SW2



529860- Smart Positioner without Limit Switch



529861- Smart Positioner with Limit Switch

Installation Instructions

Digital Smart Positioner 5298 Series

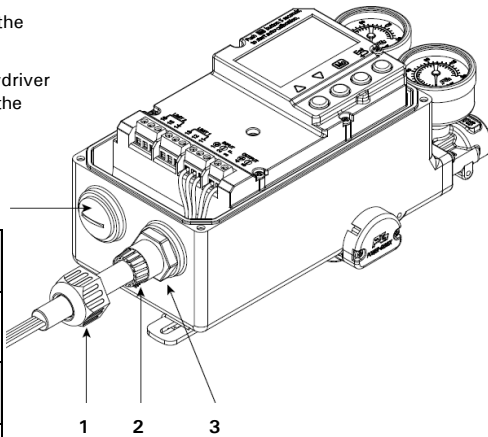
IOM
**5298
DSP**

CABLE GLAND/ BLIND PLUG CONNECTION

*Install blind plug for the unused cable entry.

*Use a flathead screwdriver to install or un-install the blind plug.

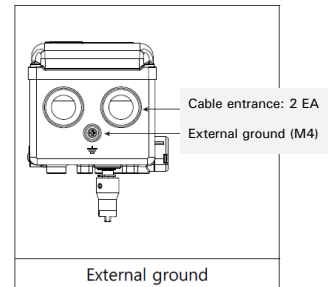
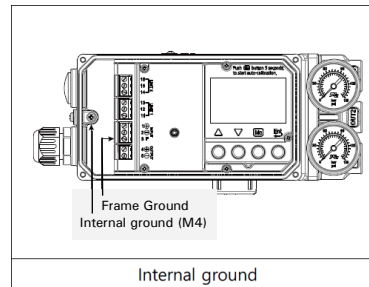
1	Cable Gland Cover
2	Cable Gland Sealing
3	Cable Gland Body
4	Blind Plug



WARNING

- 1) Use the cable with diameter of Max. Ø 12.5 to Min. Ø 9.
- 2) Disconnect the power supply before service.

EARTHING



(Both internal and external grounding screw terminals are available.)



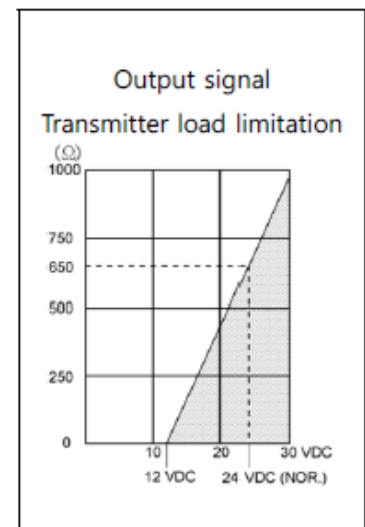
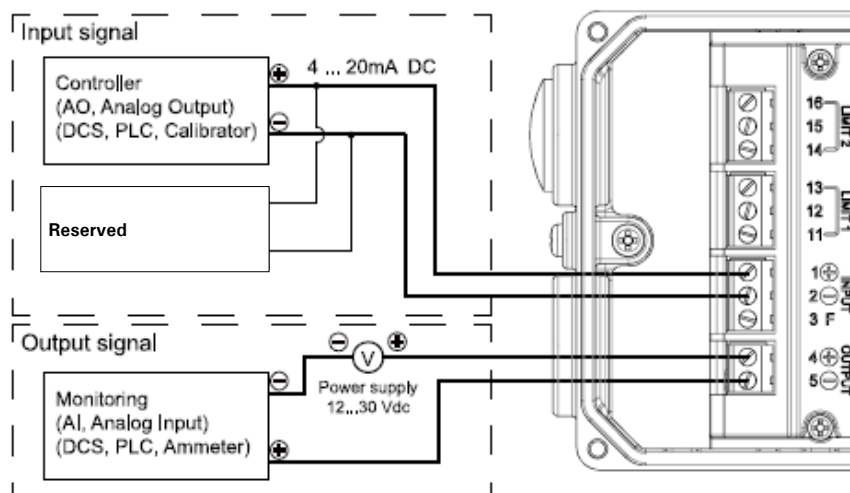
EXTERNAL GROUND

BLIND PLUG

EXTERNAL CONNECTIONS DIAGRAM- TOP VIEW (529861 model)



WIRING DIAGRAM (529860 model)



Installation Instructions

Digital Smart Positioner

5298 Series

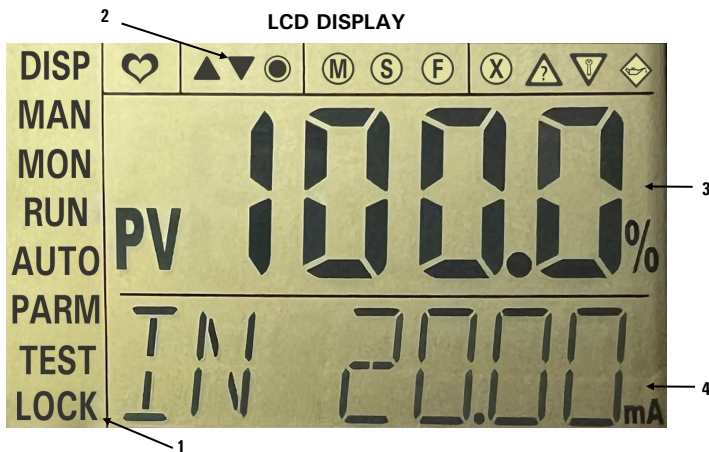
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OTHER FEATURES

The Valworx 5298 positioner has several additional features. A summary is provided below.

LOCK/UNLOCK

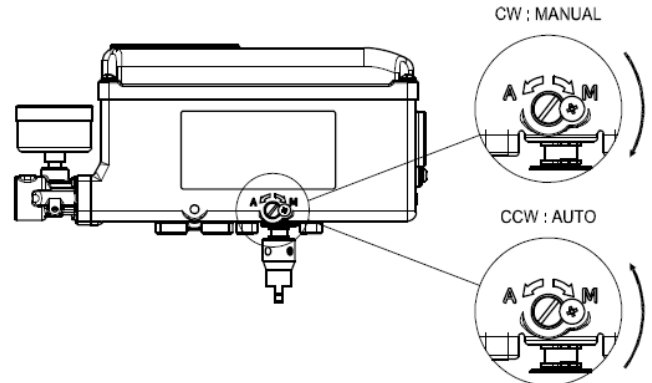
The LCD display is locked to avoid tampering. To unlock the display, press **MODE > ENTER**. The LCD is now displaying the LOCK screen. Press **ENTER** again. Press **▼**. The LOCK screen should show OFF. Press **ENTER**. The positioner settings are now unlocked. Use the **▲▼** arrows to navigate to the desired display mode.



DISP	Set display parameters
MAN	Run in manual mode
MON	Check status, error codes, run time and other parameters
RUN	Run as normal operation
AUTO	Auto calibration and initialization
PARM	Check internal parameters
TEST	Check initial set up
LOCK	Lock/Unlock display

1	Display Mode
2	Limit Switch Status
3	Present Value
4	Input Value

MANUAL OVERRIDE



Turning the manual override to **MANUAL** opens the valve. The unit will not respond to input signals while the manual override is engaged. The unit will resume normal operation by selecting **AUTO**.

Note: Be sure the manual override is set to **AUTO** before returning to service



Response speed, span, zero, deadband, & sensitivity can be set manually. Valworx recommends keeping the factory settings.

DIRECT VS REVERSE ACTING

Spring return	Double Acting	Double Acting									
As input signal increases, actuator shaft rotates counter-clockwise	As input signal increases, actuator shaft rotates counter-clockwise	As input signal increases, actuator shaft rotates clockwise									
Actuator : RA	Actuator : RA	Actuator : DA									
<table border="1"> <thead> <tr> <th></th><th>Spring Return</th><th>Double Acting</th></tr> </thead> <tbody> <tr> <td>Reverse Acting</td><td>Out1 : piped, Out2 : plugged</td><td>Out1 : piped to Actuator port A, Out2 : piped to Actuator port B</td></tr> <tr> <td>Direct Acting</td><td>Out1 : plugged, Out2 : piped</td><td>Out1 : piped to Actuator port B, Out2 : piped to Actuator port A</td></tr> </tbody> </table>				Spring Return	Double Acting	Reverse Acting	Out1 : piped, Out2 : plugged	Out1 : piped to Actuator port A, Out2 : piped to Actuator port B	Direct Acting	Out1 : plugged, Out2 : piped	Out1 : piped to Actuator port B, Out2 : piped to Actuator port A
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Direct Acting	Out1 : plugged, Out2 : piped	Out1 : piped to Actuator port B, Out2 : piped to Actuator port A									

*Note: The positioner auto-senses Direct Acting & Reverse Acting

ACTUATOR INSTALLATION

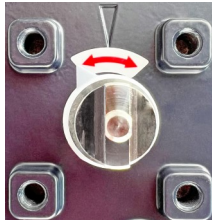
If purchased as a separate unit (not part of a Valworx assembly), please follow the instructions below.

MOUNTING POSITIONER TO ACTUATOR

Install the universal mounting bracket (included) to the positioner and air actuator as shown below. The bracket fits Valworx actuators utilizing the standard VDI/VDE-3845 NAMUR mounting interface as well as many other brands. Mounting bracket works with standard NAMUR 80x30x20mm. The positioner output spaded shaft mounts directly to the actuator slotted shaft, no linkages or adapters required.

- Assemble bracket to positioner with 4-M6 screws provided.
- Mount positioner onto air actuator with 4-M5 screws provided.
- Install white arrow between two red arrows for output drive (see images below)
- Connect Air Lines between positioner and air actuator
- ****Perform Auto Calibration by pushing MODE button for 5 seconds.****

**Make sure that the positioner works within the operating range indicated on the bottom. If not, error message of "MONT" appears on the LCD screen and the Auto Calibration process fails.



RIGHT



WRONG



**POSITIONER INSTALLED ON RACK & PINION AIR ACTUATOR*



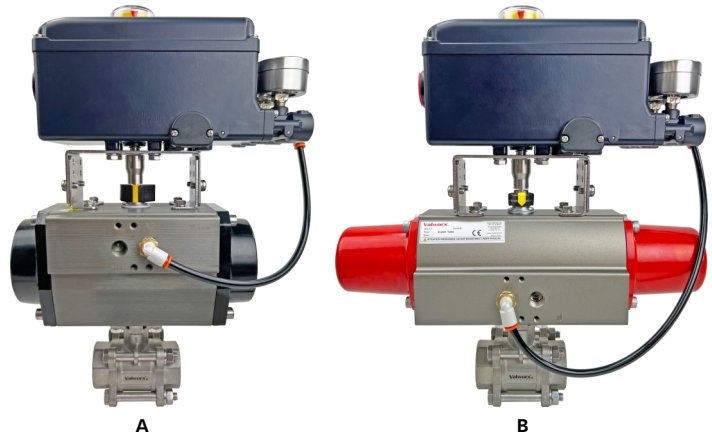
WARNING

- It is up to the installer to have the proper knowledge of the functionality of an air actuated positioner.
- Supply the rated voltage and current stated on this IOM. Incorrect voltage may cause serious damage or malfunctions.
- Check polarity of + and— and connect wires
- When necessary to open positioner cover in a humid atmosphere, extra attention is required. If not properly handled, it may cause serious damage or malfunctions
- To prevent injury, keep hands away from all moving parts. Remove air and electrical power when servicing unit.

SETUP OPTION 1

PLUMBING 'RA' FUNCTION AND 'SR' ACTUATORS

Positioner set up as reverse action (RA) for use with a Spring Return (SR) quarter turn rotary actuator. Positioner shaft rotates counter clockwise when viewed from the top. Connect 1/4" or 6mm tubing to the OUT 1 port to the positioner and the OPEN port on the actuator. (For Valworx Rack & Pinion, Port A. For Valworx Scotch Yoke, Port B) Plug positioner OUT 2. DO NOT plug open actuator port.

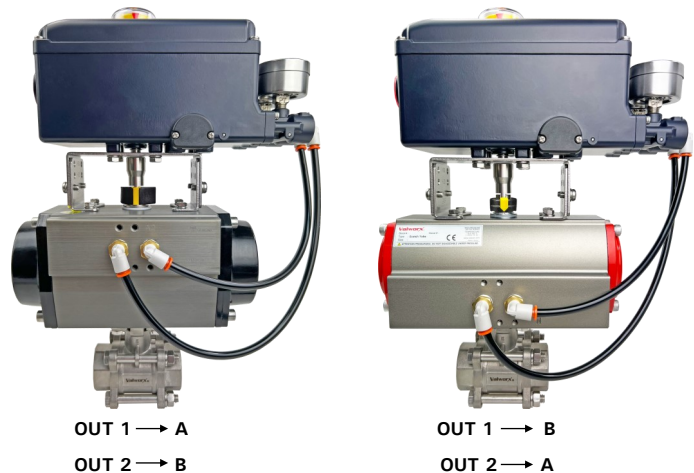


**POSITIONER INSTALLED ON RACK & PINION & SCOTCH YOKE SPRING RETURN AIR ACTUATORS*

SETUP OPTION 2

PLUMBING 'RA' FUNCTION AND 'DA' ACTUATORS

Positioner set up as Reverse Acting (RA) for use with a Double Acting (DA) quarter turn rotary actuator. Positioner shaft rotates counter clockwise when viewed from the top. Connect 1/4" or 6mm tubing to the OUT 1 port to the positioner and the OPEN port on the actuator. Connect the OUT 2 port CLOSE port on the actuator. (For Valworx Rack & Pinion, OUT 1 to Port A, OUT 2 to Port B. For Valworx Scotch Yoke, OUT 1 to Port B, OUT 2 to Port A.)



**POSITIONER INSTALLED ON RACK & PINION & SCOTCH YOKE DOUBLE ACTING AIR ACTUATORS*