SKD…U Electronic Valve Actuator

Product Description
The SKD…U actuator requires a 24 Vac supply signal to control a Flowrite™ 599 Series valve with a 3/4-inch (20 mm) stroke.

Product Numbers
SKD62U
SKD82.50U
SKD82.51U

Warning/Caution Notations

| WARNING: | ! | Personal injury/loss of life may occur if you do not follow a procedure as specified. |
| CAUTION: | ! | Equipment damage, or loss of data may occur if you do not follow a procedure as specified. |

Required Tools
- 5 mm Allen wrench
- Small and medium flat-blade screwdrivers

Expected Installation Time
20 minutes for factory installed actuator
45 minutes for field replacement of actuator

Prerequisites

WARNING:
If mounting the actuator to a valve already in line, either close the shut-off valves in the piping (upstream first, then downstream) or switch off the pump to allow the differential and static pressure in the valve to drop.

Mounting Positions

Using the Weather Shield
The SKD must be in the vertical position. Complete instructions for the mounting of the Weather Shield are included with that product.

NOTE: Use the top knockout position when installing the Weather Shield (See Figure 16).

Installation
If you are mounting an actuator on a new valve, begin with the instructions in Figure 3.
Removing the Actuator from the Valve
1. Remove the actuator cover.
2. Disconnect the wires and conduit, if installed.
3. Loosen the valve stem retainer using a 5 mm Allen wrench and lower the valve stem into the valve.
4. Loosen the yoke nuts using a 5 mm Allen wrench in the actuator yoke.
5. Remove the actuator from the valve, being careful not to damage the valve stem.

Continue with Mounting an Actuator to a Valve.

Mounting an Actuator to a Valve.

NOTE: Install the packing heating element, (P/N 599-00417), if used, before proceeding.

NOTE: Make sure the yoke nuts are loose enough to allow the actuator to slip over the bonnet. See Figure 5.
Wiring

CAUTION:
Use care when removing the knockout. Do not damage the circuit board.

Do not use autotransformers. Use earth ground isolating step-down Class 2 transformers.

Determine supply transformer rating by summing total VA of all actuators used. The maximum rating for a Class 2 power supply circuit is 100 VA.

<table>
<thead>
<tr>
<th>Actuator</th>
<th>Power Consumption</th>
<th>Actuators Per Class 2 Supply Circuit* (80% of Transformer VA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SKD62U</td>
<td>17 VA</td>
<td>4</td>
</tr>
<tr>
<td>SKD82.50U</td>
<td>10 VA</td>
<td>8</td>
</tr>
<tr>
<td>SKD82.51U</td>
<td>15 VA</td>
<td>5</td>
</tr>
</tbody>
</table>

* Operating more actuators requires additional transformers or separate 100 VA power supplies.

Connecting Terminals

<table>
<thead>
<tr>
<th>24 Vac</th>
</tr>
</thead>
<tbody>
<tr>
<td>G System Potential (SP)</td>
</tr>
<tr>
<td>G0 System Neutral (SN)</td>
</tr>
<tr>
<td>Y Control Input: 0 to 10 Vdc or 4 to 20 mA (DIP switch selectable)</td>
</tr>
<tr>
<td>Z Override Control (See Technical Instructions 155-180P25)</td>
</tr>
<tr>
<td>M Measuring Neutral</td>
</tr>
<tr>
<td>U Output for 0 to 10 Vdc or 4 to 20 mA measuring voltage. It will match the input signal type.</td>
</tr>
</tbody>
</table>

The position output signal U will switch from 0 to 10 Vdc to 4 to 20 mA when a 4 to 20 mA input signal is selected and used on the terminal.

Wiring for SKD82...U

*Changing the default setting will modify an equal percentage valve to a linear flow characteristic. When set to default, the flow characteristic is determined by the valve body.

Siemens Building Technologies, Inc.
Figure 12. Non-Spring Return SKD82.50U.

Connecting Terminals

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>G</td>
<td>System Potential 24 Vac (+)</td>
</tr>
<tr>
<td>Y1</td>
<td>Outward movement of coupling piece (0 to 1)</td>
</tr>
<tr>
<td>Y2</td>
<td>Inward movement of coupling piece (1 to 0)</td>
</tr>
<tr>
<td>Cm1</td>
<td>Limit switch for 100% stroke</td>
</tr>
<tr>
<td>c1</td>
<td>ASC9.3DU double auxiliary switch</td>
</tr>
<tr>
<td>c2</td>
<td>ASC9.3DU double auxiliary switch</td>
</tr>
<tr>
<td>1000 Ω</td>
<td>ASZ7.3 potentiometer</td>
</tr>
</tbody>
</table>

The diagram shows all possible connections. How many and which are used depend on the application.

Start-Up

Check the wiring for proper connections.


Normally Closed Valve

Actuator pressure cylinder moves:
- Outward (0 to 1): Valve opens.
- Inward (1 to 0): Valve closes.

Normally Open Valve

Actuator pressure cylinder moves:
- Outward (0 to 1): Valve closes.
- Inward (1 to 0): Valve opens.

Three-Way Valve

Actuator pressure cylinder moves:
- Outward: Valve opens between port NC and C.
- Inward: Valve opens between ports NO and C.

NOTE: The valve body assembly determines the complete assembly action.
### Manual Operation

![Manual Override in Manual and Automatic Position.](image)

**Figure 14.** Manual Override in Manual and Automatic Position.

Each complete revolution (360°) is equal to 3/32-inch (2.5 mm) stroke.

### Reference

<table>
<thead>
<tr>
<th>Technical Instruction</th>
<th>Document Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>EA 599-4 Flowrite EA599 Series SKD Electronic Valve Actuator Proportional Control</td>
<td>155-180P25</td>
</tr>
<tr>
<td>EA 599-5 Flowrite EA599 Series SKD Electronic Valve Actuator 3-position(Floating) Control</td>
<td>155-181P25</td>
</tr>
</tbody>
</table>

![Valve Stem Travel Indication.](image)

**Figure 15.** Valve Stem Travel Indication.

### Dimensions

![Dimensions of the 599-10071 Weather Shield in inches (mm).](image)

**Figure 16.** Dimensions of the 599-10071 Weather Shield in inches (mm).
Dimensions, Continued

CAUTION:
Be careful when removing the knockout. Do not damage the circuit board.

NOTE: Use the top knockout position when installing the Weather Shield.

Figure 17. SKD…U Dimensions in Inches (mm).