

## **OpenAir® GVD/GKD Series Electronic Damper Actuator**

### **UL Listed Fire/Smoke and Smoke Control Dampers**

### **2-Position, 30-second Run Time,**

### **15-second Spring Return Time**



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#### **Description**

The OpenAir direct coupled, fast-acting, two-position, spring return electronic actuators are available as 24 Vac, 120 Vac, and 230 Vac models. They are intended for use on UL-listed smoke control dampers and combination fire/smoke rated dampers.

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#### **Features**

- Optional built-in auxiliary switches: Fixed switch points at 5° and 85° rotation.
- Optional built-in Electronic Fusible Link (EFL) capability with four temperature ratings: 165°F (74°C), 212°F (100°C), 250°F (121°C), and 350°F (177°C).
- Reversible fail-safe spring return.
- High temperature polymer housing.
- Pre-cabled, insulated lead wires.
- Thirty-second powered operation at rated torque, temperature and voltage.
- Fifteen-second mechanical fail-safe at rated torque and temperature.

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#### **Application**

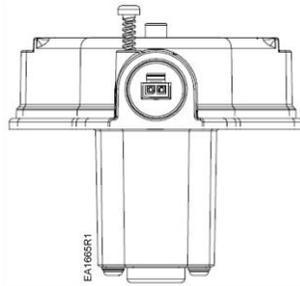
This actuator is used for the control of dampers requiring up to 80 lb-in (9 Nm) (GKD) and 200 lb-in (22 Nm) (GVD) driving torque. It is intended for control of UL-listed smoke control dampers and combination fire/smoke HVAC dampers. This actuator is designed to meet the 2002 revisions to the UL 555/555S and the AMCA Standard 520 specifications.

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## Product Numbers

Product Number	Torque		Voltage			Control Signal	EFL Capability	3-ft Plenum Cable	Auxiliary Switch
	80 lb-in (9Nm)	200 lb-in (22 Nm)	24 Vac	120 Vac	230 Vac	2-Position			
GKD121.1U	●	—	●	—	—	●	●	●	—
GKD126.1U	●	—	●	—	—	●	●	●	●
GKD221.1U	●	—	—	●	—	●	●	●	—
GKD226.1U	●	—	—	●	—	●	●	●	●
GKD321.1U	●	—	—	—	●	●	●	●	—
GKD326.1U	●	—	—	—	●	●	●	●	●
GVD121.1U	—	●	●	—	—	●	●	●	—
GVD126.1U	—	●	●	—	—	●	●	●	●
GVD221.1U	—	●	—	●	—	●	●	●	—
GVD226.1U	—	●	—	●	—	●	●	●	●
GVD321.1U	—	●	—	—	●	●	●	●	—
GVD326.1U	—	●	—	—	●	●	●	●	●

## Accessories



### Electronic Fusible Link (EFL)

- ASK791.165 (165°F [74°C] operation)
- ASK791.212 (212°F [100°C] operation)
- ASK791.250 (250°F [121°C] operation)
- ASK791.350 (350°F [177°C] operation)

Determine and order appropriate actuator before selecting an EFL.

Figure 1. Electronic Fusible Link.

## Warning/Caution Notations

<b>WARNING</b>		Personal injury or loss of life may occur if you do not perform a procedure as specified.
<b>CAUTION:</b>		Equipment damage may occur if you do not perform a procedure as specified.

## Service



### WARNING:

Do not open the actuator. Personal injury may occur if opened. Opening the actuator voids the warranty.

If the actuator is inoperative, replace the unit.

<b>Specifications</b>	Operating voltage	24 Vac $\pm$ 20%	
	Frequency	50/60 Hz	
<b>Power supply</b>		120 Vac $\pm$ 10%	
	Frequency	60 Hz 230 Vac $\pm$ 10%	
	Power Consumption:	<b>GKD (80 lb-in)</b>	<b>GVD (200 lb-in)</b>
		<b>Run/Hold</b>	<b>Run/Hold</b>
	GxD12x.1U	26 VA/8 VA	35 VA/9 VA
	GxD22x.1U	26 VA/8 VA	35 VA/9 VA
	GxD32x.1U	26 VA/8 VA	35 VA/9 VA
		<b>CAUTION:</b> Continuous use at voltages above the recommended tolerances may damage the actuator.	
<b>Function</b>	Running torque	80 lb-in GKD (9 Nm) (minimum) 200 lb-in GVD (23 Nm) (minimum)	
	Stall torque (minimum)	130 lb-in GKD (14.6 Nm) (minimum) 280 lb-in GVD (32 Nm) (minimum)	
	Powered runtime for 90°	30 seconds nominal	
	Fail-safe closing (on power loss) with spring return	15 seconds maximum	
	Nominal angle of rotation	95°	
<b>Life Expectancy</b>		Minimum 20,000 full stroke cycles	
<b>Mounting</b>	Damper shaft size	1/2-inch (12,7 mm) to 1" (25 mm) round	
	Damper shaft length, minimum	3-inch (76.2 mm)	
<b>Housing</b>	Enclosure	NEMA 1/IP40	
	Material	High temperature polymer	
<b>Ambient conditions</b>	Operation	0°F to 140°F (-18°C to 60°C) one time 350°F (177°C) ½ hour per UL555S	
	Storage and transport	-40°F to 158°F (-40°C to 70°C)	
	Ambient humidity (non-condensing)	Maximum 95% rh non-condensing	
	Cross-linked polyethylene cable	400°F (200°C)	
<b>Fixed Dual End Switches</b>	Fixed Dual End Switches AC rating	24 Vac to 250 Vac, 24 Vdc 6A resistive/ 2 FLA/12 LRA	
	Temperature rating	350°F (177°C)	
<b>Agency certification</b>		UL60730 cUL CSA 60730 CE Conformity for residential, commercial, and industrial environments Australian RCM conformity China-RoHS with Environmental Protection Use Period	
<b>Miscellaneous</b>	Pre-cabled connection Length:	3 ft (0.9m) 19/30 strand 18 GA	
	Dimensions	10.7" H x 3.4" W x 3.8" D (272.8 mm H x 101.5 mm W x 96.4 mm D)	
	Weight	≈9 lb (4.1 kg)	
	Country of Origin	USA	

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## Operation

When power is applied, the actuator coupling moves toward the open position, 90°. The actuator opens in **30** seconds nominal, 90° at 60 Hz. In the event of a power failure or when operating voltage is turned off, the actuator returns to the **0** position. The return time is 15 seconds nominal for 90°.

The National Fire Protection Association NFPA 92A Standard for Recommended Practice for Smoke-Control System and UL 864 Standard for Control Units and Accessories for Fire Alarm Systems, require weekly self-tests for **dedicated** smoke control equipment used in a smoke control system. The National Fire Protection Association NFPA 72 Standard for National Fire Alarm Codes states that all life-safety systems are to be functionally checked at least annually.

The GVD/GKD actuators do not require any periodic cycling to function properly as an integral part of an active smoke control damper system. Check the smoke control damper/actuator every time you functionally check your smoke detectors, emergency lights, and/or power generators for operation.

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## Installation

See *OpenAir® GVD/GKD Series Electronic Damper Actuator Designed for UL Listed Fire/Smoke and Smoke Control Dampers Installation Instructions (A5W00094027)* for detailed guidelines.



**CAUTION:**

Read and carefully follow the Installation Instructions to avoid equipment damage.

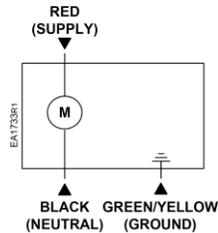
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## Wiring

All wiring must conform to NEC and local codes and regulations.

### Wire Designations

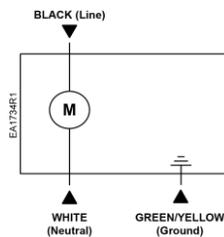
24 Vac



Function	Color
Supply	Red
Neutral	Black
Ground	Green/Yellow

Figure 2.

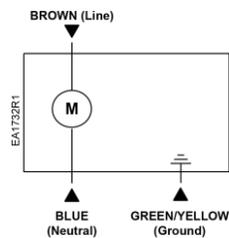
120 Vac



Function	Color
Line	Black
Neutral	White
Ground	Green/Yellow

Figure 3.

230 Vac



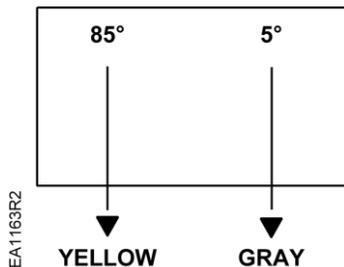
Function	Color
Line	Brown
Neutral	Blue
Ground	Green/Yellow



**CAUTION:**

The actuator must be wired with a 230 Vac line with respect to neutral and the ground lead must be connected for proper protection of the actuator. Any other connection, such as phase-to-phase, can damage the actuator.

Figure 4.



Switch	Wire Color	Switch Makes	Switch Breaks
5°	Gray	< 5°	> 5°
85°	Yellow	> 85°	< 85°

Figure 5. Fixed Dual End Switches.

**NOTE:**

Both sets of contacts are open when actuator is between 5° and 85°.



**CAUTION:**

Mixed switch operation to the switching outputs of both dual end switches (5° and 85°) is not permitted.

Either AC line voltage from the same phase must be applied to all four outputs of the fixed dual end switches, or UL-Class 2 voltage must be applied to all four outputs.

## Wiring, Continued

### NOTE:

If you are not using an EFL, do not modify the actuator. An EFL or jumper must be installed for actuator to work properly.

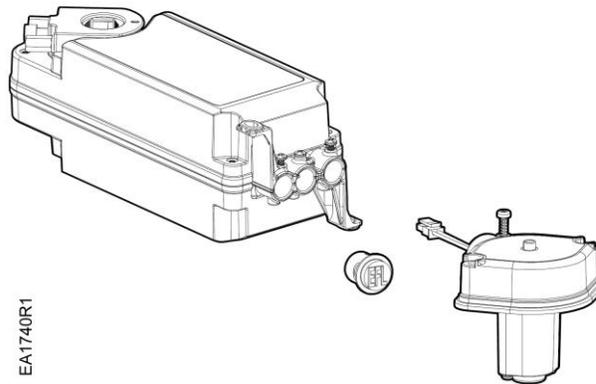


Figure 6.

## Dimensions

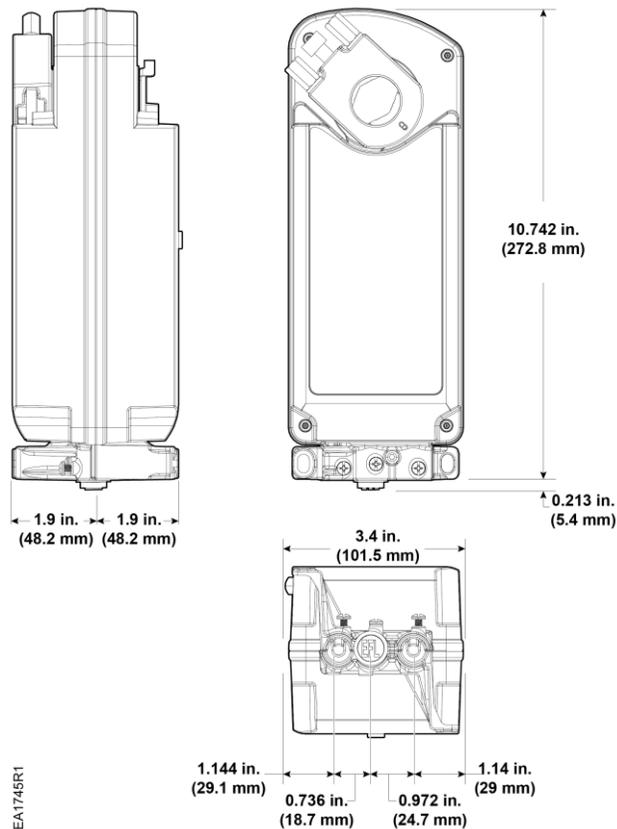


Figure 7. Dimensions of the OpenAir GVD/GKD Actuator in Inches (Millimeters).

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