

## OpenAir™ GND Series Electronic Damper Actuator

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

2-Position, 15-second Run Time,

15-second Spring Return Time



### Description

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

### 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), 350°F (177°C).
- Reversible fail-safe spring return.
- All metal housing.
- Pre-cabled Teflon® insulated lead wires.
- Fifteen-second operation at rated torque, temperature and voltage.



### Application

This actuator is used for the control of dampers requiring up to 53 lb-in (6 Nm) 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.

## Product Numbers

|             |  |
|-------------|--|
| <b>G</b>    | Direct-coupled Electronic Fire and Smoke Damper Actuator |
| <b>N</b>    | Spring Return 53 lb-in (6 Nm)                            |
| <b>D</b>    | 15 second run time                                       |
| <b>1</b>    | 24 Vac/dc  |
| <b>2</b>    | 120 Vac  |
| <b>3</b>    | 230 Vac  |
| <b>2</b>    | 2-position   |
| <b>1</b>    | Standard version   |
| <b>6</b>    | Two auxiliary switches                                   |
| <b>.1</b>   | Fire and smoke shaft adapter                             |
| <b>U</b>    | Assembled in USA   |
| <b>/B</b>   | Bulk pack 10   |
| <b>/F</b>   | Electronic Fusible Link (EFL) connection                 |
| <b>/F/B</b> | EFL connection and bulk pack 10                          |

## Warning/Caution Notations

|                 |   |  |
|-----------------|---|--|
| <b>WARNING</b>  |  | Personal injury/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%<br>24 Vdc +20%, -10%   |
| <b>Power supply</b>            | Frequency   | 50/60 Hz  |
|                                |   | 120 Vac $\pm$ 10%   |
|                                | Frequency   | 60 Hz   |
|                                |   | 230 Vac $\pm$ 10%   |
|                                | Frequency   | 50/60 Hz  |
|                                | Power consumption<br>running                                  | 24 Vac/dc<br>20 VA/12W  |
|                                | holding   | 8 VA/6W   |
| <b>Power Consumption</b>       | 120 Vac/230 Vac   |   |
|                                | running   | 20 VA   |
|                                | holding   | 9 VA  |
| <b>Function</b>                | Running torque  | 53 lb-in (6 Nm) (minimum)   |
|                                | Stall torque (minimum)  | 160 lb-in (18 Nm)   |
|                                | Torque reduction at elevated temperature                      | Less than 10%   |
|                                | Runtime for 90°<br>closing (on power loss) with spring return | 15 seconds nominal<br>15 seconds maximum  |
|                                | Nominal angle of rotation                                     | 95°   |
| <b>Life Expectancy</b>         |   | Minimum 35,000 full stroke cycles   |
| <b>Mounting</b>                | Damper shaft size   | .5-inch (12,7 mm) round   |
|                                | Damper shaft length, minimum                                  | 1.4-inch (36 mm)  |
| <b>Housing</b>                 | Enclosure   | NEMA 1  |
|                                | Material  | Die cast aluminum alloy   |
| <b>Ambient conditions</b>      | Operation   | 0°F to 140°F (-18°C to 60°C)<br>one time 350°F (177°C)  |
|                                | Storage and transport   | -40°F to 158°F (-40°C to 70°C)  |
|                                | Ambient humidity (non-condensing)                             | Maximum 95% rh non-condensing   |
|                                | Teflon® cable   | 400°F (200°C)   |
| <b>Fixed Dual End Switches</b> | Fixed Dual End Switches<br>AC rating                          | 24 Vac to 250 Vac, 24 Vdc<br>6A resistive/<br>2 FLA/12 LRA  |
|                                | Temperature rating  | 350°F (177°C)   |
| <b>Agency certification</b>    |   | UL873<br>cUL C22.2 No. 24-93<br>AS/NZS 2064 1/2:1997<br>Conforms to CE requirements for the<br>EMC and low voltage directives<br>Australian Electromagnetic<br>Compatibility (EMC) per AS/NZS<br>4251.1/2:1999 (C-tick) |
| <b>Miscellaneous</b>           | Pre-cabled connection<br>Length:                              | FEP Teflon® jacketed<br>3 ft (0.9m)   |
|                                | Dimensions  | 19/30 strand 18 GA<br>9-in x 3.25-in x 3-in D<br>(229 mm x 83 mm x 76 mm)   |
|                                | Weight  | ≈4 lb (1.8 kg)  |
|                                | Country of Origin   | USA   |

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## Accessories

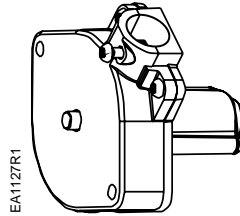


Figure 1.

### Electronic Fusible Link (EFL)

ASK79.165 (165°F [74°C] operation)  
ASK79.212 (212°F [100°C] operation)  
ASK79.250 (250°F [121°C] operation)  
ASK79.350 (350°F [177°C] operation)

**NOTE:** Determine and order appropriate actuator before selecting EFL.

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## Operation

When power is applied, the actuator coupling moves toward the open position, 90°. The actuator opens in 15 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 GND actuator does 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

Refer to the installation instructions (See 129-402) for detailed guidelines.



### CAUTION:

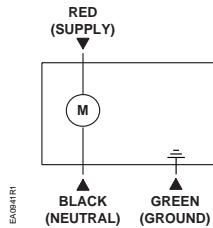
Read and carefully follow the Installation Instructions to avoid equipment damage.

## Wiring

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

### Wire Designations

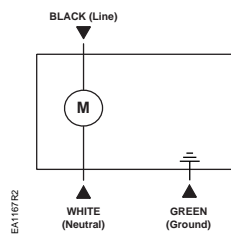
24 Vac/dc



| Function | Color |
|----------|-------|
| Supply   | Red   |
| Neutral  | Black |
| Ground   | Green |

Figure 2.

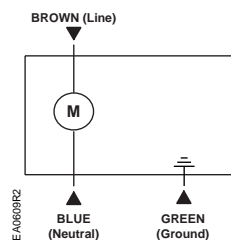
120 Vac



| Function | Color |
|----------|-------|
| Line     | Black |
| Neutral  | White |
| Ground   | Green |

Figure 3.

230 Vac



| Function | Color |
|----------|-------|
| Line     | Brown |
| Neutral  | Blue  |
| Ground   | Green |

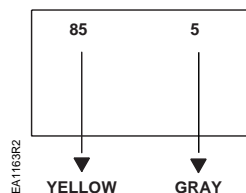


**CAUTION:**

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.

Fixed Dual End Switches



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

**NOTE:**

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



**CAUTION:**

Mixed switch operation to the switching outputs of both fixed 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.

Figure 5.

## Wiring, Continued

**NOTE:**  
 When ordered, GND  
 Electronic Fusible Link  
 models come pre-wired  
 for coupling with EFL  
 sensor.

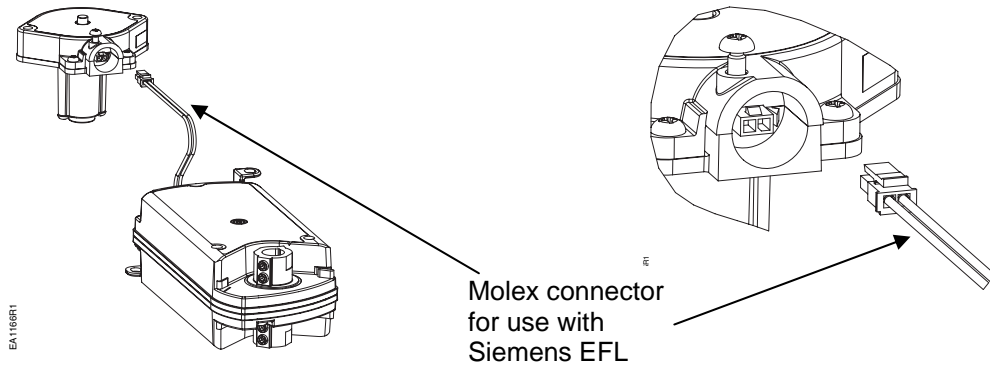


Figure 6.

## Dimensions

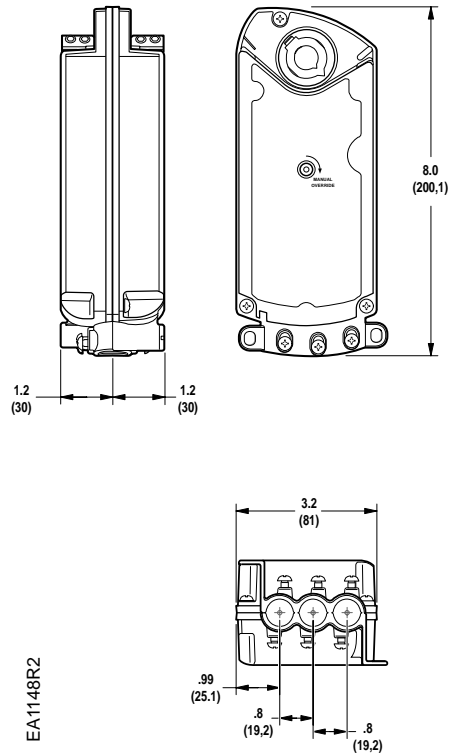


Figure 8. Dimensions of OpenAir GND Actuator in Inches (Millimeters).

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