

# YCCS Zone/Bypass Damper Assembly

UZR-xx-x, UBR-xx-x, UZD-0xxX0xx-x, UBD-0xxX0xx-x

## Description

The York Commercial Comfort System (YCCS) Zone/Bypass Damper Assemblies are zone control and pressure control devices that include the damper and control components in a factory assembled configuration. The assembly includes the round or rectangular damper, configured Direct Digital Control (DDC) controller, electric actuator, pressure sensor (in the bypass damper only), National Electrical Manufacturers' Association (NEMA) Type 1 enclosure, and an optional control power transformer. The controllers are application specific, factory programmed digital controllers that communicate via the BACnet® Master Slave/Token-Passing (MS/TP) Protocol. Both the zone and bypass controllers operate as part of a larger zoning system and provide zone and pressure control for the appropriate mechanical equipment.

The zone damper modulates in response to temperature variations relative to a user defined space temperature setpoint. The bypass damper modulates to maintain supply duct static pressure setpoint.

## Round Damper Assemblies

### Superior Design

The round zone damper is a 22 gauge galvanized steel unit. An automated manufacturing process produces damper blades to exact specifications. The damper is designed for low noise operation with minimal friction loss and a tight closure seal. Air leakage is less than 1% of rated capacity at 3 inch W.G. inlet pressure.

### Solid Molded Damper Shaft

The solid damper shaft is molded using a high-impact, high-strength composite material. It is designed to eliminate condensation on the extended portion that penetrates the unit casing. The shaft allows a more secure attachment to the damper actuator, since the set screws adhere to this material better than metal. The high impact material gives the shaft superior impact strain resistance compared to cast metal shafts. The damper blade is mounted on the damper shaft and connected by means of an integral molded sleeve. The shaft rotates in low friction self lubricating bearings.

### Control Enclosure

The zone and bypass damper assembly include a NEMA Type 1 galvanized steel (22 gauge) enclosure for factory mounting of the direct digital controller, damper actuator, differential pressure sensor (in bypass damper only), and an optional multi-tap primary/24 VAC secondary transformer.

### Round Damper Assembly Construction Components

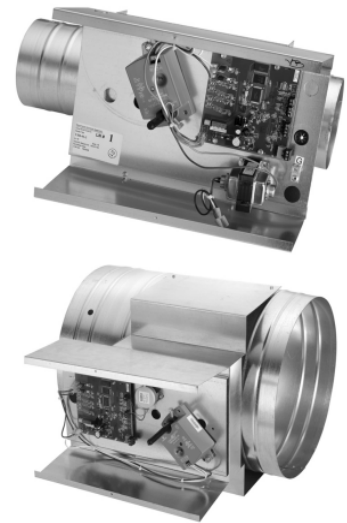
| Damper Part  | Construction Component  |
|--------------|---|
| Frame        | 22 gauge galvanized steel valve body with embossed beads. Withstands 125 hour salt spray test per ASTM B-117. |
| Blade        | Full circular closed cell gasket secured between two pieces of 22 gauge sheet metal.                          |
| Damper Shaft | Molded solid damper shaft constructed of high-impact, high-strength composite material.                       |
| Bearing      | Low friction self-lubricating bearings  |
| Seal         | Full circular closed cell gasket  |
| Temp Limits  | 32 to 122°F (0 to 50°C)   |

## Features

- Factory mounted and wired control components reduce installation time
- Fast response actuator drives the damper from full open to full closed (90) in 60 seconds to reduce commissioning time
- Continuous loop tuning provided by Pattern Recognition Adaptive Control (PRAC) technologies
- Available in both round and rectangular configurations

## Repair Information

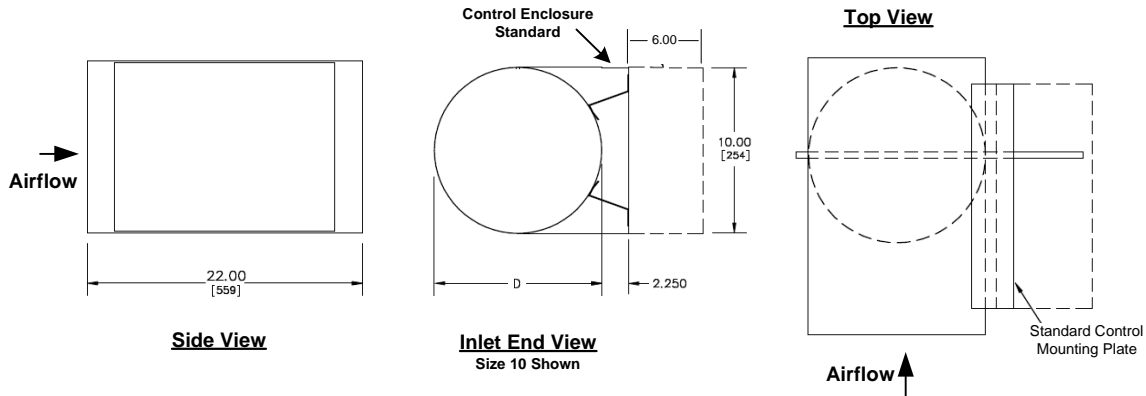
If the YCCS Zone/Bypass Damper Assembly fails to operate within its specifications, see the *Repair Parts* Table for a list of repair parts. Contact your local Source 1 representative for a replacement unit.



Zone/Bypass Damper Assemblies

## YCCS Zone/Bypass Damper Assembly (Continued)

### Round Damper Assembly Dimensions



| Unit Size     | 06    | 08    | 10    | 12     | 14     | 16     |
|---------------|-------|-------|-------|--------|--------|--------|
| Dimension - D | 5.88" | 7.88" | 9.88" | 11.88" | 13.88" | 15.88" |

### Round Damper Assembly Dimensions

## Rectangular Damper Assemblies

### Superior Design

The rectangular damper offers sturdy, steel construction with interlocking frame design. The unit frame is constructed of 5 x 1 x 16 in. gauge (127 x 25 x 1.6 mm) galvanized steel hat channel reinforced with corner braces for structural strength equal to the 13 gauge (2.28). Low profile 3 1/2 x 3/8 x 16 gauge (89 x 10 x 1.6) galvanized steel channel top and bottom frame on dampers under 330 mm (13 in.) high. Damper locks together without bolts, screws, or rivets that could shake loose. The frame corners are internally braced to reduce racking.

### Damper Blades

Blades are 152 mm (6 in.) wide, 16 (1.6) gauge galvanized steel approximately 152 mm (6 in.) on center with parallel action.

### Damper Shaft

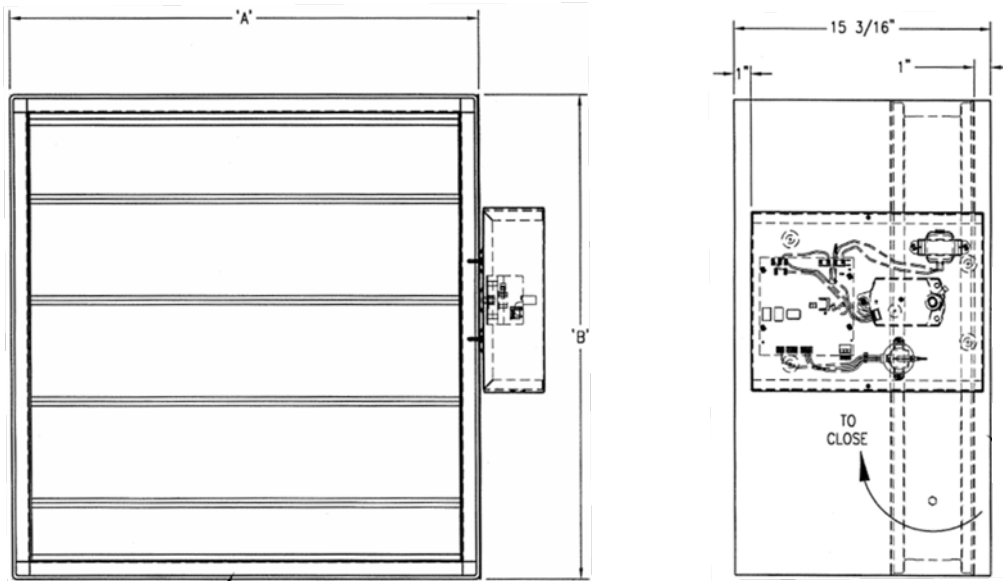
1/2 inch plated steel hex axles positively lock to blades without screws or welds. Non-stick, non-corrosive bearings assure long life and ease of operation. Axles, bearings and shake proof linkage combine for low maintenance operation.

### Rectangular Damper Assembly Construction Components

| Damper Part  | Construction Component   |
|--------------|--|
| Frame        | 5 x 1 x 16 inch gauge galvanized steel hat channel reinforced with corner braces for structural strength equal to 13 gauge |
| Blade        | 6 inches wide, 16 gauge galvanized steel approximately 6 inches on center, parallel action                                 |
| Damper Shaft | 1/2 inch plated steel hex axles  |
| Bearing      | Corrosion resistant, molded synthetic sleeve type  |
| Temp Limits  | 32 to 122°F (0 to 50°C)  |

## YCCS Zone/Bypass Damper Assembly (Continued)

### Rectangular Damper Assembly Dimensions



| Zone Damper Size<br>AxB | Bypass Damper Size<br>AxB |
|-------------------------|---------------------------|
| 8"x12"                  | 14"x12"                   |
| 8"x14"                  | 16"x16"                   |
| 8"x16"                  | 20"x20"                   |
| 10"x16"                 | 30"x30"                   |
| 10"x20"                 |                           |
| 14"x18"                 |                           |

Rectangular Damper Assembly Dimensions

### Selection Charts

#### Round Damper Assemblies

| Damper Size<br>(Area - SqFt)         | 6 inch<br>(0.188)                     | 8 inch<br>(0.338) | 10 inch<br>(0.532) | 12 inch<br>(0.769) | 14 inch<br>(1.05) | 16 inch<br>(1.375) |
|--------------------------------------|---------------------------------------|-------------------|--------------------|--------------------|-------------------|--------------------|
| Air Velocity Through Damper<br>(FPM) | Zone/Bypass Only Damper Airflow - CFM |                   |                    |                    |                   |                    |
| 750 FPM - Zone                       | 141                                   | 254               | 399                | 577                | 788               | 1031               |
| 1000 FPM - Zone                      | 188                                   | 338               | 532                | 769                | 1050              | 1375               |
| 1250 FPM - Zone                      | 235                                   | 423               | 665                | 961                | 1313              | 1718               |
| 1500 FPM - Bypass only               | 282                                   | 507               | 798                | 1154               | 1575              | 2062               |
| 1750 FPM - Bypass only               | 329                                   | 592               | 931                | 1346               | 1838              | 2405               |
| 2000 FPM - Bypass only               | 376                                   | 676               | 1064               | 1538               | 2100              | 2749               |
| 2250 FPM - Bypass only               | 423                                   | 761               | 1197               | 1730               | 2363              | 3094               |

### YCCS Zone/Bypass Damper Assembly (Continued)

#### Rectangular Zone Damper Assembly

| Damper Size W x H inches<br>(Area - SqFt) | 8 x 12 inches<br>(0.42)   | 8 x 14 inches<br>(0.5) | 8 x 16 inches<br>(0.58) | 10 x 16 inches<br>(0.77) | 10 x 20 inches<br>(1.00) | 14 x 18 inches<br>(1.33) |
|---|---------------------------|------------------------|-------------------------|--------------------------|--------------------------|--------------------------|
| Air Velocity Through Damper<br>(FPM)      | Zone Damper Airflow - CFM |                        |                         |                          |                          |                          |
| 750 FPM                                   | 315                       | 375                    | 435                     | 578                      | 750                      | 998                      |
| 1000 FPM                                  | 420                       | 500                    | 580                     | 770                      | 1000                     | 1330                     |
| 1250 FPM                                  | 525                       | 625                    | 725                     | 963                      | 1250                     | 1663                     |

#### Rectangular Bypass Only Damper Assembly

| Damper Size W x H inches<br>(Area - SqFt) | 14 x 12 inches<br>(0.83)         | 16 x 16 inches<br>(1.36) | 20 x 20 inches<br>(2.25) | 30 x 30 inches<br>(5.44) |
|---|----------------------------------|--------------------------|--------------------------|--------------------------|
| Air Velocity Through Damper<br>(FPM)      | Bypass Only Damper Airflow - CFM |                          |                          |                          |
| 1500 FPM                                  | 1245                             | 2040                     | 3375                     | 8160                     |
| 1750 FPM                                  | 1453                             | 2380                     | 3938                     | 9520                     |
| 2000 FPM                                  | 1660                             | 2720                     | 4500                     | 10880                    |
| 2250 FPM                                  | 1868                             | 3060                     | 5063                     | 12240                    |

#### Part Numbers (Part 1 of 2)

| Product Code Number   | Description   | Weight (lb)   |      |
|---|---|---|------|
| Round Zone Damper Assemblies (Pressure Depend)  | UZR-06-0C   | 6 in. round zone damper, actuator, controller (no transformer)                        | 16.3 |
|   | UZR-06-1C   | 6 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)        | 18.3 |
|   | UZR-06-2C   | 6 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)            | 18.3 |
|   | UZR-08-0C   | 8 in. round zone damper, actuator, controller (no transformer)                        | 18.3 |
|   | UZR-08-1C   | 8 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)        | 20.3 |
|   | UZR-08-2C   | 8 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)            | 20.3 |
|   | UZR-10-0C   | 10 in. round zone damper, actuator, controller (no transformer)                       | 20.3 |
|   | UZR-10-1C   | 10 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)       | 22.3 |
|   | UZR-10-2C   | 10 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)           | 22.3 |
|   | UZR-12-0C   | 12 in. round zone damper, actuator, controller (no transformer)                       | 21.3 |
|   | UZR-12-1C   | 12 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)       | 23.3 |
|   | UZR-12-2C   | 12 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)           | 23.3 |
|   | UZR-14-0C   | 14 in. round zone damper, actuator, controller (no transformer)                       | 22.3 |
|   | UZR-14-1C   | 14 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)       | 24.3 |
|   | UZR-14-2C   | 14 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)           | 24.3 |
|   | UZR-16-0C   | 16 in. round zone damper, actuator, controller (no transformer)                       | 25.3 |
| UZR-16-1C   | 16 in. round zone damper, actuator, controller (120/208/240-24 VAC Transformer)       | 27.3  |      |
| UZR-16-2C   | 16 in. round zone damper, actuator, controller (277/480-24 VAC Transformer)           | 27.3  |      |
| Round Bypass Damper Assemblies (Includes Differential Pressure Transducer for monitoring Duct Pressure) | UBR-10-0C   | 10 in. round bypass damper, actuator, controller, DP (no transformer)                 | 20.6 |
|   | UBR-10-1C   | 10 in. round bypass damper, actuator, controller, DP (120/208/240-24 VAC Transformer) | 22.6 |
|   | UBR-10-2C   | 10 in. round bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)     | 22.6 |
|   | UBR-12-0C   | 12 in. round bypass damper, actuator, controller, DP (no transformer)                 | 21.6 |
|   | UBR-12-1C   | 12 in. round bypass damper, actuator, controller, DP (120/208/240-24 VAC Transformer) | 23.6 |
|   | UBR-12-2C   | 12 in. round bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)     | 23.6 |
|   | UBR-14-0C   | 14 in. round bypass damper, actuator, controller, DP (no transformer)                 | 22.6 |
|   | UBR-14-1C   | 14 in. round bypass damper, actuator, controller, DP (120/208/240-24 VAC Transformer) | 24.6 |
|   | UBR-14-2C   | 14 in. round bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)     | 24.6 |
|   | UBR-16-0C   | 16 in. round bypass damper, actuator, controller, DP (no transformer)                 | 25.6 |
| UBR-16-1C   | 16 in. round bypass damper, actuator, controller, DP (120/208/240-24 VAC Transformer) | 27.6  |      |
| UBR-16-2C   | 16 in. round bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)     | 27.6  |      |

## YCCS Zone/Bypass Damper Assembly (Continued)

### Part Numbers (Part 2 of 2)

| Product Code Number   | Description  | Weight (lb)  |      |
|---|--|--|------|
| Rectangular Zone Damper Assemblies (Pressure Depend)  | UZD-008X012-0C   | 8 x 12 in zone damper with actuator, controller (no transformer)                       | 5.3  |
|   | UZD-008X012-1C   | 8 x 12 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)          | 7.3  |
|   | UZD-008X012-2C   | 8 x 12 in. zone damper, actuator, controller (277-480-24 VAC Transformer)              | 7.3  |
|   | UZD-008X014-0C   | 8 x 14 in. zone damper with actuator, controller (no transformer)                      | 6.0  |
|   | UZD-008X014-1C   | 8 x 14 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)          | 8.0  |
|   | UZD-008X014-2C   | 8 x 14 in. zone damper, actuator, controller (277-480-24 VAC Transformer)              | 8.0  |
|   | UZD-008X016-0C   | 8 x 16 in zone damper with actuator, controller (no transformer)                       | 6.6  |
|   | UZD-008X016-1C   | 8 x 16 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)          | 8.6  |
|   | UZD-008X016-2C   | 8 x 16 in. zone damper, actuator, controller (277-480-24 VAC Transformer)              | 8.6  |
|   | UZD-010X016-0C   | 10 x 16 in zone damper with actuator, controller (no transformer)                      | 7.9  |
|   | UZD-010X016-1C   | 10 x 16 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)         | 9.9  |
|   | UZD-010X016-2C   | 10 x 16 in. zone damper, actuator, controller (277-480-24 VAC Transformer)             | 9.9  |
|   | UZD-010X020-0C   | 10 x 20 in. zone damper with actuator, controller (no transformer)                     | 9.6  |
|   | UZD-010X020-1C   | 10 x 20 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)         | 11.6 |
|   | UZD-010X020-2C   | 10 x 20 in. zone damper, actuator, controller (277-480-24 VAC Transformer)             | 11.6 |
|   | UZD-014X018-0C   | 14 x 18 in. zone damper with actuator, controller (no transformer)                     | 11.8 |
|   | UZD-014X018-1C   | 14 x 18 in. zone damper, actuator, controller (120/208/240-24 VAC Transformer)         | 13.8 |
| UZD-014X018-2C  | 14 x 18 in. zone damper, actuator, controller (277-480-24 VAC Transformer)             | 13.8   |      |
| Rectangular Bypass Damper Assemblies (Includes Differential Pressure Transducer for monitoring Duct Pressure) | UBD-014X012-0C   | 14 x 12 in. bypass damper, actuator, controller, DP (no transformer)                   | 8.6  |
|   | UBD-014X012-1C   | 14 x 12 in. bypass damper, actuator, controller, DP (120/208/240 - 24 VAC Transformer) | 10.6 |
|   | UBD-014X012-2C   | 14 x 12 in. bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)       | 10.6 |
|   | UBD-016X016-0C   | 16 x 16 in. bypass damper, actuator, controller, DP (no transformer)                   | 12.2 |
|   | UBD-016X016-1C   | 16 x 16 in. bypass damper, actuator, controller, DP (120/208/240 - 24 VAC Transformer) | 14.2 |
|   | UBD-016X016-2C   | 16 x 16 in. bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)       | 14.2 |
|   | UBD-020X020-0C   | 20 x 20 in. bypass damper, actuator, controller, DP (no transformer)                   | 18.4 |
|   | UBD-020X020-1C   | 20 x 20 in. bypass damper, actuator, controller, DP (120/208/240 - 24 VAC Transformer) | 20.4 |
|   | UBD-020X020-2C   | 20 x 20 in. bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)       | 20.4 |
|   | UBD-030X030-0C   | 30 x 30 in. bypass damper, actuator, controller, DP (no transformer)                   | 39.1 |
| UBD-030X030-1C  | 30 x 30 in. bypass damper, actuator, controller, DP (120/208/240 - 24 VAC Transformer) | 41.1   |      |
| UBD-030X030-2C  | 30 x 30 in. bypass damper, actuator, controller, DP (277/480-24 VAC Transformer)       | 41.1   |      |

### Accessories

| Product Code Number | Description   |
|---------------------|---|
| TE-68NT-0NN0S       | Wall Temperature Sensor, 1 k ohm, Nickel with Temporary Occupancy Button                                      |
| TE-68NT-1NN0S       | Wall Temperature Sensor, 1 k ohm, Nickel with Warmer/Cooler Temperature Adjust and Temporary Occupancy Button |
| FTG18A-600R         | Static Pressure Remote Mounted Sensing Probe  |

### Repair Parts

| Product Code Number | Description  |
|---------------------|--|
| Y65T54-0            | 40 VA control power transformer (120/208/240 - 24 VAC) |
| Y65F13-0            | 40 VA control power transformer (277/480 - 24 VAC)     |
| S1-M9104-AGA-3S     | Damper actuator, 35 lb-in, floating control            |
| S1-263G-005-JC6     | Bypass DP transducer 0.5 - 4.5 VDC, 0-5 in. w.c.       |
| S1-LC-ZEC100-0      | Zone damper control board - replacement                |
| S1-LC-BYP100-0      | Bypass damper control board - replacement              |

## YCCS Zone/Bypass Damper Assembly (Continued)

### Technical Specifications

| Zone/Bypass Damper Assembly                    |  |
|--|--|
| <b>Product Code Number</b>                     | York Commercial Comfort System (YCCS):<br><b>Zone Controller:</b> S1-LC-ZEC100-0<br><b>Bypass Damper Assembly:</b> S1-LC-BYP100-0  |
| <b>Power Supply Requirement</b>                | 20 - 30 VAC @ 50 to 60 Hz, Class 2 power supply or Safety Extra Low Voltage (SELV) at 50/60 Hz (20 VAC minimum)  |
| <b>Power Consumption</b>                       | Zone Damper Assembly: 3 VA (not including external loads)<br>Bypass Assembly: 2 VA (not including external loads)  |
| <b>Ambient Conditions</b>                      | Ambient Operating Conditions: 0 to 50°C (32 to 122°F); 10 to 90% RH noncondensing<br>Ambient Storage Conditions: -40 to 85°C (-40 to 185°F); 10 to 90% RH  |
| <b>Processor</b>                               | 20 MHz Renesas H8S2398 processor   |
| <b>Memory</b>                                  | 1 MB Flash nonvolatile memory for operating system, configuration data, and operations data storage and backup<br>512K Synchronous Random Access Memory (SRAM) for operations data dynamic memory  |
| <b>Housing</b>                                 | Plastic housing material: ABS + polycarbonate UL94-5VB<br>Protection: IP20 (IEC 60529)   |
| <b>Mounting</b>                                | On flat surface with screws on three mounting clips  |
| <b>Dimensions<br/>(Height x Width x Depth)</b> | 140 x 140 x 25 mm (5.5 x 5.5 x 1.0 in.)  |
| <b>Shipping Weight</b>                         | approximately 0.3 lb (controller only)   |
| <b>Compliance</b>                              | <b>United States</b><br>UL Listed, File E107041, CCN PAZX, UL 916<br>FCC Compliant to CFR47, Part 15, Subpart B, Class A<br><b>Canada</b><br>UL Listed, File E107041, CCN PAZX7, CAN/CSA C22.2 No. 205, Signal Equipment<br>Industry Canada Compliant, ICES-003<br><b>European Union</b><br>CE Mark, EMC Directive 89/336/EEC, in accordance with EN 61000-6-4 (2001) Generic Emission Standard for Heavy Industrial and EN 61000-6-2 (2001) Generic Immunity Standard for Heavy Industrial Environment<br><b>Australia and New Zealand</b><br>C-Tick Mark, Australia/NZ Emissions Compliant |

| Bypass DP Transducer                           |  |
|--|--|
| <b>Product Code Number</b>                     | S1-263G-005-JC6  |
| <b>Power Requirement</b>                       | 5.0 VDC  |
| <b>Pressure Range</b>                          | 0 to 5.0 w.c.  |
| <b>Overpressure limit</b>                      | 15.0 w.c.  |
| <b>Output Voltage</b>                          | 0.5 to 4.5 VDC into load impedance of 25,000 ohms                            |
| <b>Accuracy</b>                                | Linearity: ± 1.0% full span maximum<br>Hysteresis: ± 0.05% full span maximum |
| <b>Dimensions<br/>(Height x Width x Depth)</b> | 25.4 x 68.8 x 63.5 mm (1.0 x 2.71 x 2.5 in.)                                 |

| Damper Actuator                                |  |
|--|--|
| <b>Product Code Number</b>                     | S1-M9104-AGA-3S  |
| <b>Power Requirement</b>                       | 24 VAC + 25% / - 20% @ 50 to 60 Hz, 2.1 VA Supply, Class 2 |
| <b>Control Type</b>                            | Floating control without timeout                           |
| <b>Input Signal</b>                            | 24 VAC + 25% / - 20% @ 50 to 60 Hz, 2.1 VA Supply, Class 2 |
| <b>Running Torque</b>                          | 35 lb·in   |
| <b>Dimensions<br/>(Height x Width x Depth)</b> | 132.08 x 71.1 x 58.4 mm (5.2 x 2.8 x 2.3 in.)              |

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Johnson Controls Unitary Products  
5005 York Drive  
Norman, OK 73069