

Description and Application

These combination air flow transducers and actuator units are designed primarily for variable air volume terminal units controlled via Direct Digital Control (DDC) systems such as KMC's Digital System. They can be used in slave or dual duct tracking applications.

Air flow is sensed by utilizing a single or multi-point differential (velocity) pressure measuring station or pitot tube. Air flow sensing is accomplished utilizing twin platinum resistance temperature detectors. Velocity measurement is maintained at 3% accuracy over the range of 0 to 3,300 feet per minute (FPM).

Each unit mounts directly to a 1/2" diameter or 3/8" square damper shaft, or a 3/8" diameter shaft (HFO-0011 shaft adaptor required). Damper control is provided by an 18°/minute or 60°/minute actuator. The actuator is controlled by an SPDT "floating" input (on the TSP-5003/5023) or 2–10 VDC proportional input (on the TSP-5002/5022). A minimum of 50 in.-lbs. torque is provided. Both minimum and maximum stops are standard to limit the rotation. A gear disengagement feature allows positioning the damper and/or gear-train without energizing the actuator.

A 10,000 ohm, 1/3 watt feedback potentiometer is standard on the TSP-5003/5023 (only).

A single or double auxiliary switch may be field installed.

Features

- ◆ Direct mounting to 1/2" diameter or 3/8" square damper shaft, or a 3/8" diameter shaft (requires HFO-0011 shaft adaptor)
- ◆ 18°/ minute or 60°/minute actuator models
- ◆ Gear disengagement feature allows positioning the damper and/or gear-train without unit activation
- ◆ Twin platinum resistance temperature detectors
- ◆ Built-in 10,000 ohm, 1/3 watt feedback potentiometer on the TSP-5003/5023 (only)
- ◆ Proportional or tri-state inputs



Models

The following models are available:

| | |
|----------|------------------------------|
| TSP-5002 | 2–10 VDC input, 18°/ minute |
| TSP-5022 | 2–10 VDC input, 60°/ minute |
| TSP-5003 | Tri-state input, 18°/ minute |
| TSP-5023 | Tri-state input, 60°/ minute |

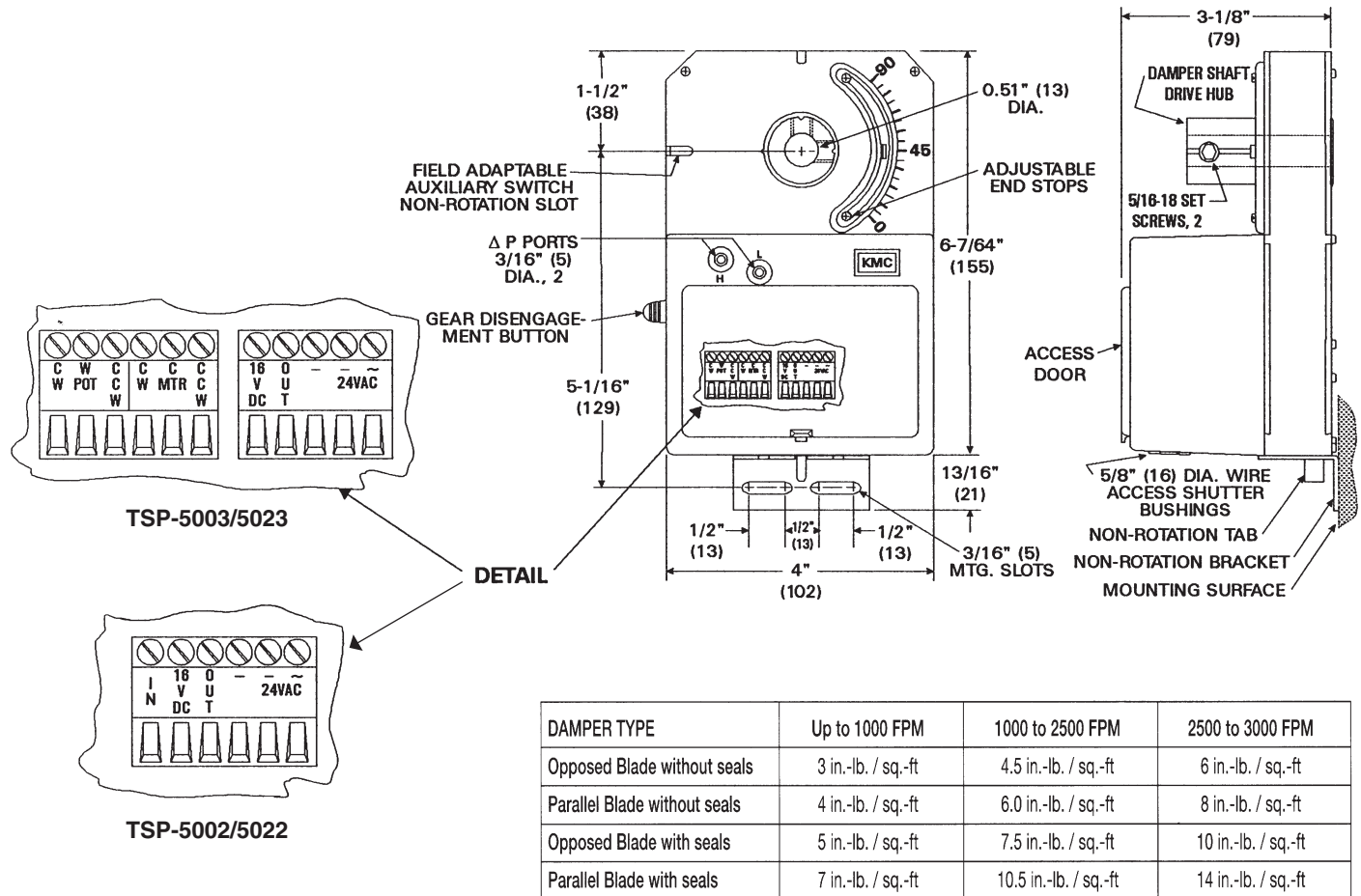
Accessories

The following accessories are available:

| | |
|----------|---|
| CME-1002 | Single auxiliary switch |
| CME-1004 | Double auxiliary switch |
| HFO-0011 | 3/8" shaft adaptor |
| HMO-1003 | Replacement non-rotation bracket (one included) |
| HMO-4518 | Snap-in connector for 1/2" flexible metal conduit |
| HMO-4520 | Compression connector for plenum cable |
| HMO-4526 | Female connector for 1/2" conduit |
| SSS-1000 | Differential pressure flow sensors |

Dimensions

All dimensions are in inches



Specifications

| | |
|------------------------|--|
| Supply Power | 24 VAC, -15/+20%, 5 VA |
| Flow Sensor | Twin platinum resistive temperature sensors |
| Velocity Range | 0 to 3,300 FPM (16.76 m/s) dependant upon DP pickup, tubing size/length and connec- tions |
| Velocity Output | 1 to 5 VDC (0 to 100% flow) |
| Output Torque | 50 to 70 in.-lbs. (5.7 to 7.9 N•m) |
| Feedback Potentiometer | 10,000 ohm, 1/3 watt |
| Connections | Wire clamp for 14–22 AWG Copper |
| Angular Rotation | 0 to 95°, both end stops adjustable |
| Inputs | TSP-5002/5022: 2 to 10 VDC TSP-5003/5023: Tri-state |

Motor Timing

TSP-5002/5003

18°/minute @ 60 Hz;
15°/minute @ 50 Hz

TSP-5022/5023

60°/minute @ 60 Hz;
50°/minute @ 50 Hz

Material

UL94-5V flame retardant
polymer, black housing/white
cover

Weight

2.4 lb. (1 kg)

Temperature Limits

| | |
|-----------|-------------------------------|
| Operating | 32° to 120° F (0° to 49° C) |
| Shipping | 40° to 140° F (-40° to 60° C) |

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