

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).

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

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

Differential Pressure Flow Sensors

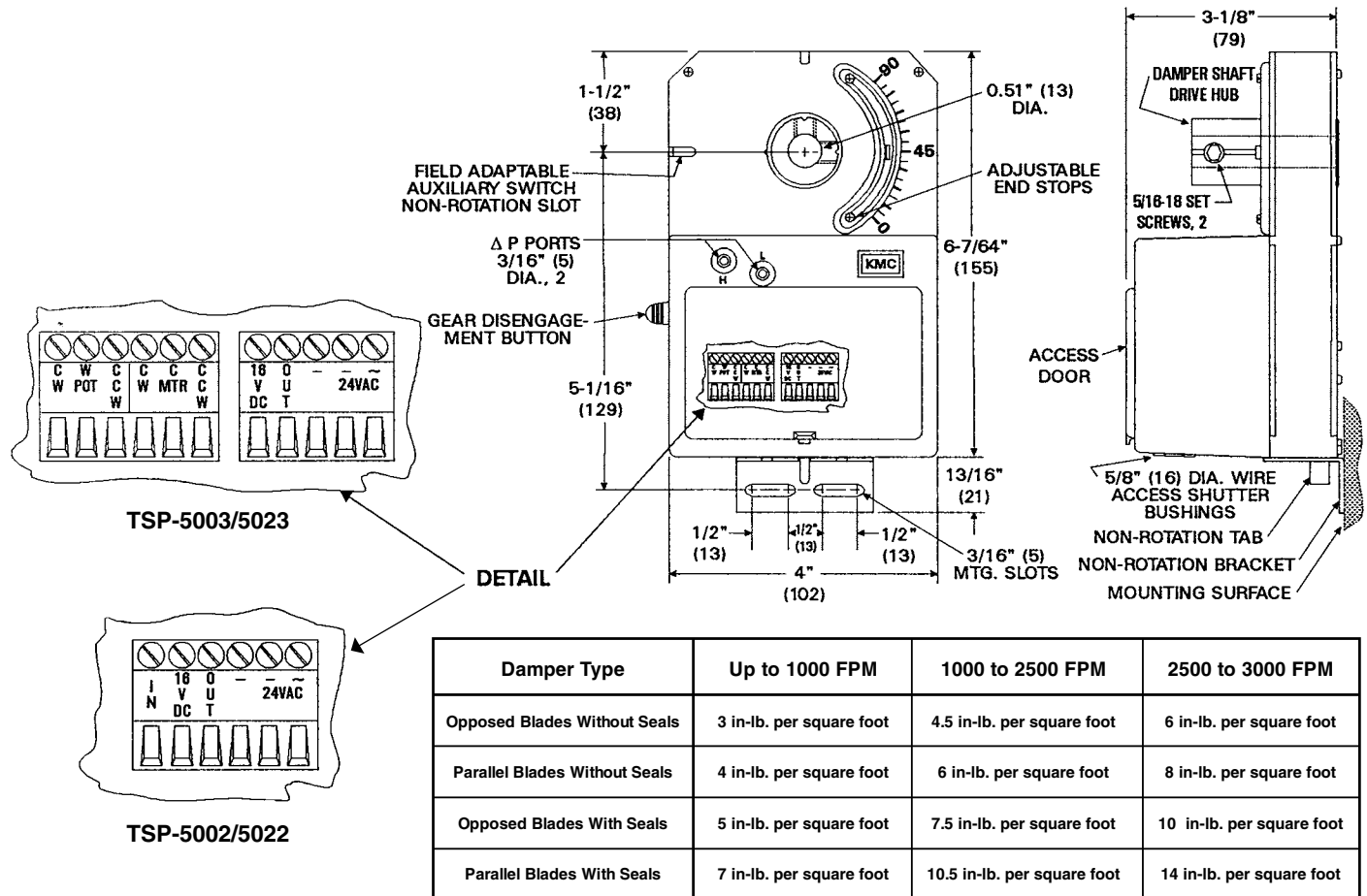
SSS-1002	3-5/32 inches long (80 mm)
SSS-1003	5-13/32 inches long (137 mm)
SSS-1004	7-21/32 inches long (195 mm)
SSS-1005	9-29/32 inches long (252 mm)

Mounting and Connection Hardware

HFO-0011	3/8" shaft adaptor
HMO-1003	Replacement non-rotation bracket (one included)
HMO-4520	Compression connector for plenum cable

Dimensions

All dimensions are in inches



Specifications

Supply Power	24 VAC (-15/+20%), 5 VA, Class 2 only
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 connections
Velocity Output	1 to 5 VDC (0 to 100% flow)
Output Torque	50 to 70 in-lb. (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

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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