

Description

The airflow and velocity transducer series FSE is design to control the air flow into air duct in HVAC systems and in VAV applications.

Technical characteristics

Measurement ranges

Velocity: Range 2: 0...400 FPM (0...2 m/s)
 Range 10: 0...2.000 FPM (0...10 m/s)
 Range 20: 0 - 4.000 FPM (0...20 m/s)

Temperature: 0...50°C

Accuracy

Velocity: Range 2: 0...400 FPM
 <20 FPM +5% from reading
 Range 10: 0...2.000 FPM
 <100 FPM +5% from reading
 Range 20: 0...4.000 FPM
 <200 FPM +5% from reading

Temperature: <0,55° C for v > 100 FPM

Accuracy specifications include: general accuracy, temperature drift, linearity, hysteresis, long term stability, and repetition error.

Technical specifications

Media Compatibility: Dry air or non-aggressive gases

Measuring units: FPM and °F

Measuring element: Temperature: NTC10k

Velocity: Pt1000

Environment

Operating Temperature: 0 - 50°C

Storage Temperature: -20 - 70°C

Humidity: 0 to 95% RH, non condensing

Dimensions: 90,0 x 95,0 x 36,0 mm

Dimensions - Probe:

Ø: 10mm

Length: 210mm from cover bottom

Immersion Length with Flange:

Adjustable 50...180 mm

Weight (Case + Probe): 220 g

Mounting: 2 screw holes, 4,0mm

Materials:

Case: ABS (UL 94 V-0 Approved)

Lid: PC (UL 94 V-0 Approved)

Probe: Stainless Steel

Protection standard: IP54 / NEMA3

Display

3 1/2 Digit LCD display

Size: 45,7 x 12,7 mm

Electrical Connections (2 each)

Power Supply & Signal Out: 4 screw terminal

block

12-24AWG (0,2...1,5 mm²)

Relay Out: 3 screw terminal block

12-24AWG (0,2 - 1,5 mm 2)

Cable Entry (2 each)

Strain Relief: M16

Knockout : 16 mm

Electrical:

Input: 24V AC/DC ± 10%

Current consumption 35mA (50mA with relay)

+ 40mA with mA-outs



Output signal 1: (Tout) 0...10V (linear to temperature) 0...50°C
 L min 1k

V Output = 32F + (9 degrees F * volts)

4 - 20mA (linear to temperature) 0...50°C

L max 400

mA Output = 32F + [5.625 degrees F * (mA - 4)]

Output signal 2: (vout)

0...10V (linear to FPM), L min 1k

4...20mA (linear to FPM), L max 400

Relay Out: 3 screw terminal block

(NC, COM, NO) 12-24AWG (0,2 - 1,5 mm²)

Potential free SPDT, 250VAC, 6A / 30VDC, 6A

adjustable switching point and hysteresis.

Conformance

Meets requirements for CE marking:

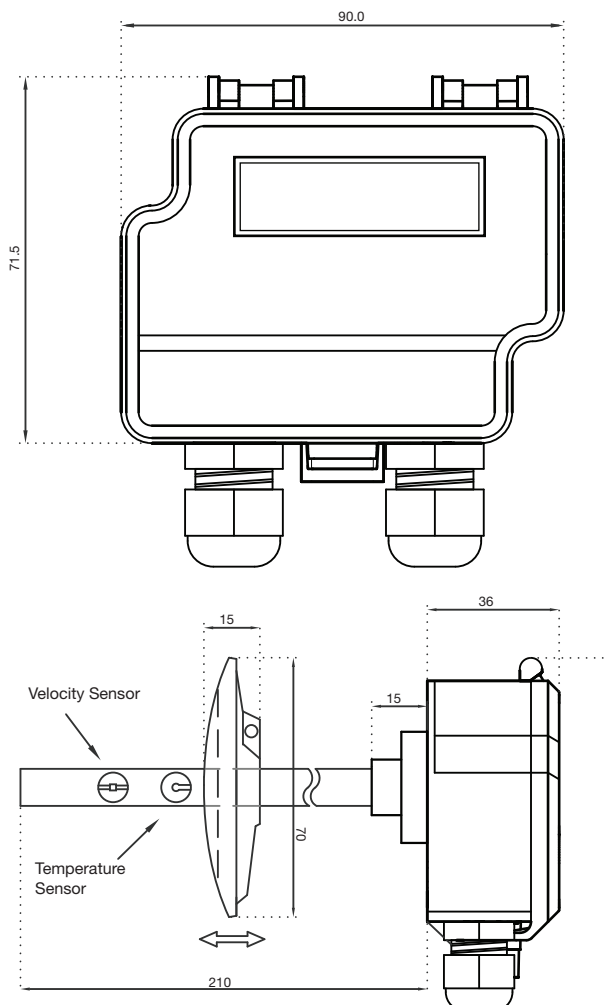
EMC Directive 2004/108/EY

RoHS Directive 2002/95/EY

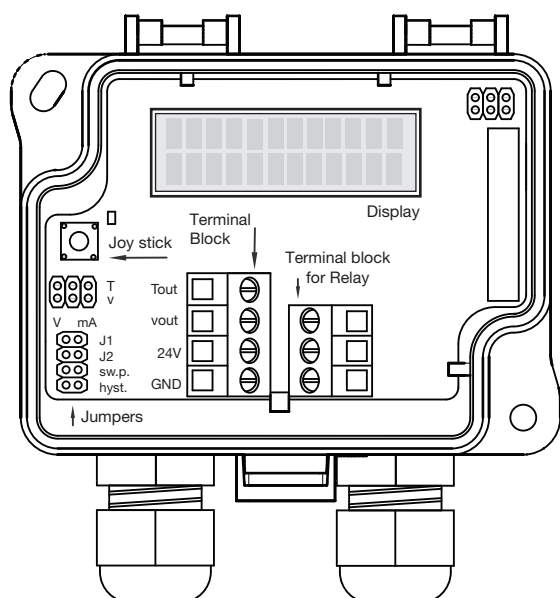
Meets safety requirements for electrical equipment

for measurement, control, and laboratory use:

ETL marking, standard IEC61010-1.



Models	Display + relay
FSE1	•
FSE2	-



Installation

- 1) Mount the device in desired location, see Step 1.
- 2) Open the lid and route cable through strain relief and connect the wires to terminal block, see Step 2. Use separate strain relief for each cable.
- 3) The device is now ready for configuration.

WARNING! Apply power after the device is properly wired.

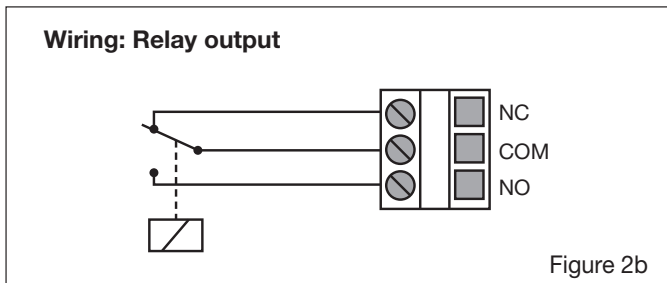
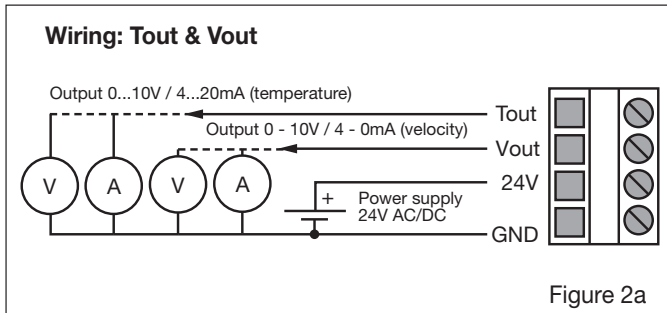
STEP 1 (mounting device)

- 1) Select mounting location (in a duct).
- 2) Use the mounting angle of the device as a template and mark the screw holes.
- 3) Mount the angle on the duct with screws (not included), Figure 1a.
- 4) Adjust the probe to desired depth. Ensuring the end of the probe reaches the middle of the duct, Figure 1b.
- 5) Tighten the screw on the angle, to hold the probe in position.

STEP 2 (Wiring diagrams)

For CE compliance, a properly grounded shielding cable is required.

- 1) Unscrew strain relief and route cable(s). Use the strain relief on left for power in and signal out (Tout/vout) and the strain relief on right for relay.
- 2) Connect the wires as shown in Figures 2a and 2b.
- 3) Tighten the strain relief.



Configuration requires:

- 1) Select the desired measurement mode, Step 3.
- 2) Select the desired measurement range, Step 4.
- 3) Configure the relay (optional), Steps 5 and 6.

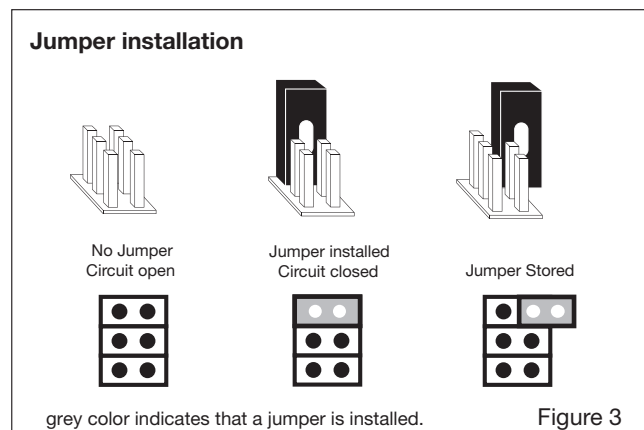
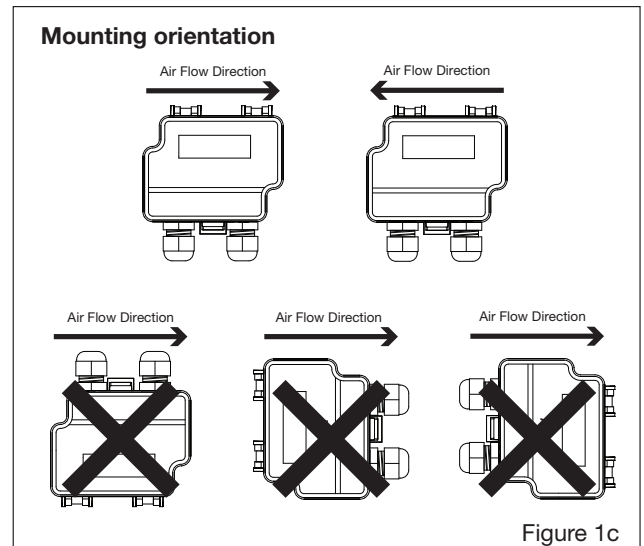
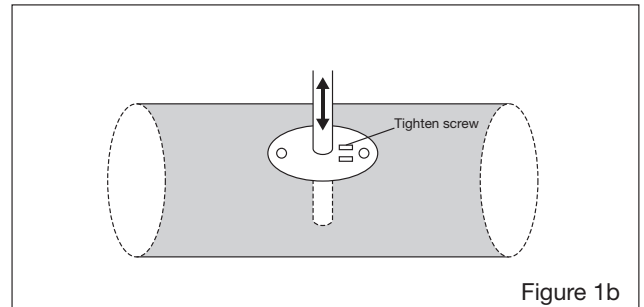
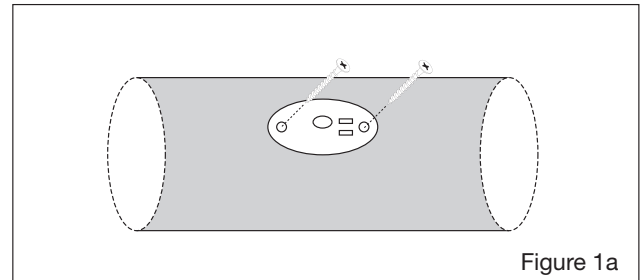
Selection convention used to input configuration information into FSE Transducer

Entering configuration information into the FSE Air Velocity and Temperature transducer is accomplished with the Joystick, see Figure 5, the Display, and Jumpers installed and removed from the set of three (3) or four (4) jumper pins, see Figure 5.

Joystick Pressing down or tilting (Tilt Up/Down or Side to Side) will cycle the display through the available menu choices. The Joystick will only cycle the choices up, if you accidentally pass your preferred selection continue to activate the Joystick until your selection reappears.

Jumpers Jumpers are used in two (2) different ways:

- 1) Jumpers are installed, and remain installed, to select the required choice, see Steps 3 and 4.
- 2) Jumpers are installed, a choice is made, and the jumper is removed, see Steps 5 and 6.



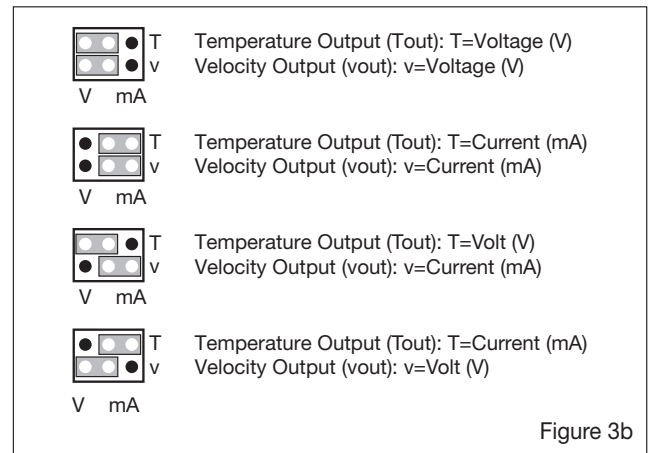
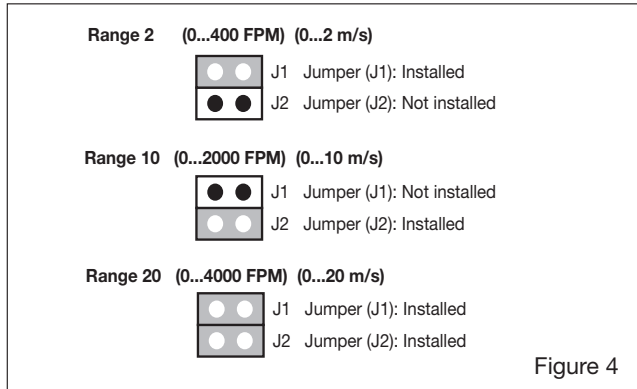
STEP 3 (select measurement mode)

Configure the outputs:

1) Select the output mode, Current (4-20mA) or Voltage (0-10V), by installing jumpers as shown in Figure 3b. Both outputs, Temperature (T) and Velocity (v), are configured separately.

STEP 4 (select measurement range)

Select the measurement range by installing jumpers as shown in Figure 4. Note: Figure 3, Jumper Installation.



STEP 5 (configure relay) (jumper sw.p)

Note: display is required.

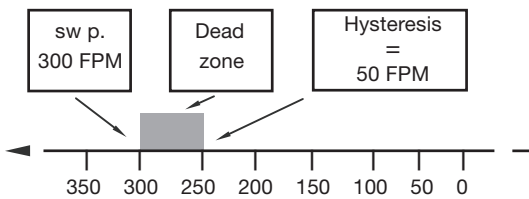
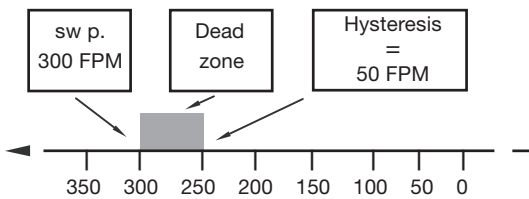
- 1) Install jumper to pins labeled sw.p. (Switching Point), see Figure 5.
- 2) Press down/tilt the push-button (joystick). The values (FPM) for the Switching Point (relay on/off) will cycle up. Continue until the required value (FPM) is shown on the display.
- 3) Remove and store jumper after configuration is completed.

STEP 6 (configure relay) (jumper hyst.)

- 1) Install jumper to pins labeled hyst. (hysteresis), see Figure 5.
- 2) Press down/tilt the push-button (joystick). The values (FPM) for the hysteresis of the relay switching point will cycle up to the maximum value. Continue until the required value (FPM) is shown on the display.
- 3) Remove and store jumper after configuration is completed.

About hysteresis

Hysteresis represents a dead-zone less than or equal to 20% of the Range Selected. The hysteresis is anchored at the Switching Point (sw p.), extending to the hysteresis range selected.



In above example Switch Point is set at 300 FPM, and hysteresis is set at 50 FPM. As the velocity increases over 300 FPM, the relay will open/close. As velocity reduces, the relay will not close/open until the velocity passes 250 FPM, thus preventing rapid cycling.

Range		Maximun Hysteresis	
m/s	FPM	m/s	FPM
0...2	0...400	0,4	80
0...10	0...2.000	2	400
0...20	0...4.000	4	800

The Hysteresis Maximum setting is based on the Range Selected.