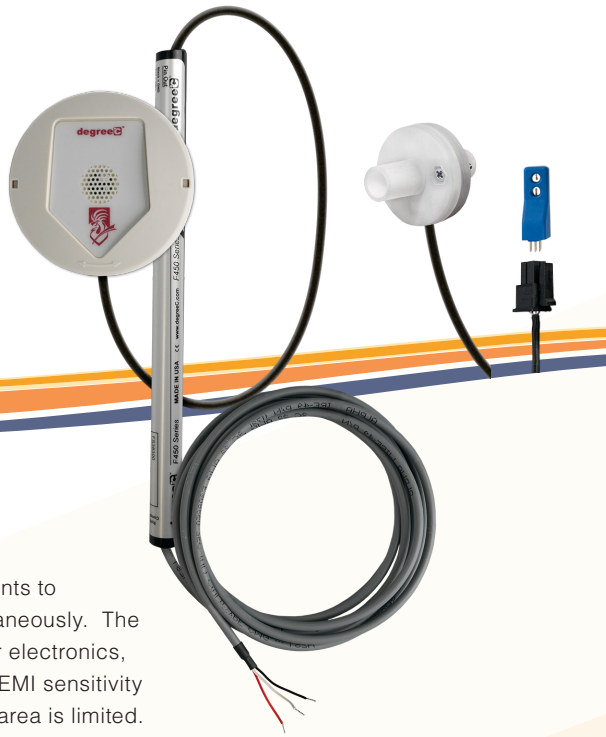
degreeC™

DEGREE CONTROLS,INC.

Your Partner for Airflow Sensing & Controls

F550 Specialty Sensor



Application

- Chemical Fume Hoods
- Compact Electronics
- Curing and Coating
- Filter Boxes
- Fume Cupboards
- HVAC
- Medical Equipment
- Pressurized Cabinets
- Specialized Air Handlers
- Spray Booths
- Vent Sensing and Pressurized Containers

and products where...

- A miniature sensor head is needed
- There is sensitivity to EMI
- High vibrations occur

Overview

F550 specialty sensors use dual-sensing elements to measure air velocity and air temperature simultaneously. The sensor element is built remotely from the sensor electronics, advantageous for those systems involving high EMI sensitivity or extreme temperatures, or where the sensing area is limited. Designed with conformal coated electronics and sealed enclosure, F550 specialty sensors are suitable for demanding applications. With sidewall, inline, and board mount sensor head styles, these application specific sensors are configured to order with choices for velocity range, analog output and digital communication.

Sidewall sensors act as flow-through devices and are well suited for applications where clean, ambient air can be drawn in, rather than contaminated exhaust air, to measure airflow.

Inline sensors are designed to replace failed legacy products, or upgrade those which are no longer accurate enough for new standards. They are typically mounted inside a cabinet plenum area to increase the tamper-resistance of the sensor element. Inline sensors include tubing and can be quickly installed and connected by splicing into the ½" flow tubing being used by an existing airflow monitor.

Board mount sensors consists of a sensor body for sensor electronics and board-mount sensor head, giving users the freedom to embed the tiny sensor head into printed circuit board assemblies for real time air velocity and temperature measurements. With segregation of the sensing element and sensor electronics, valuable space on the test board is not used up with sensor electronics.

Mechanical Features

- Very compact electronics.
- Optimized sensor head designs and mechanical constructions.
- Robust, sealed probe assembly uses corrosion and UV resistant materials.
- Conformal coated sensing elements for environmental protection.
- 1m (3ft), shielded sensor element wire, and 2m (6ft) plenum rated, power and signal wire.
- RoHS compliant
- CE certified

Please see our Remote Head sensors for additional sensor head styles including low profile (LP), plastic cap (PC), wand, and extra small (XS).

Electrical & Performance Features

- Industry-leading air velocity performance, with repeatability within 1%.
- 1°C air temperature accuracy.
- Best in class acceptance angle performance.
- 24 VAC/DC nominal voltage input.
- Custom lower voltage inputs are available.
- Configurable analog output for velocity AND temperature.
- Simultaneous digital communication is available.
- May be configured as an airflow switch with open drain output.
- Multi-sensor addressing capability.
- Configurable velocity averaging for smoothing sensor response.
- <10 second start-up time and 400ms response time.

Degree Controls, Inc.

is an ISO-9001 certified, world-class designer and manufacturer of airflow sensing, monitoring, and control solutions. With over 25 years of proven experience, we pride ourselves on delivering solutions which provide the value, differentiation, and service required by our customers, to meet the rapidly changing competitive landscape that they face.

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NOVA INSTRUMENTS

Specifications

Velocity Range	0.15m/s to 20m/s (30 fpm to 4,000 fpm)
Operating Temperature	-10°C to 60°C (14°F to 140°F)
Storage Temperature	-40°C to 105°C (-40°F to 221°F)
Response Time	400ms
Relative Humidity (non-condensing)	5-95%
Supply Power Requirements	24 VAC/VDC, 75mA nominal
Velocity & Temperature Output	0-5V, 0-10V, or 4-20mA output

Digital Output	UART or I²C available for flow and temperature information
Alarm Output	Open drain, configurable trip point
Housing Construction	Polycarbonate (PC) Flammability UL94-HB
Plenum Rated Cable	22 AWG
Remote Head Cable	Shielded Teflon
Enivornmental Protection	IP65 electronics, including conformal coated sensing element

Remote Extension to Sensor Head 1m [3']

Sensor Housing Length 197mm [7.75"]
Sensor Housing Diameter 12.7mm [0.5"]

Cable Length 2m [6']

Available Sensor Heads

Sidewall, Inline, Board Mount

See our Remote Head sensors for alternative sensor head styles such as low profile (LP), plastic cap (PC), wand, and extra small blade (XS).

Air Velocity Performance

Repeatability ±1% of reading (under identical conditions)

Air Velocity Range

0.15 to 1.0 m/s (30 to 200 fpm)
0.5 to 10 m/s (100 to 2,000 fpm)
1.0 to 20 m/s (200 to 4,000 fpm)
*within compensation range

Air Velocity Accuracy*

± (1% of reading + 0.05 m/s [10 fpm])
± (4% of reading + 0.10 m/s [20 fpm])
± (5% of reading + 0.15 m/s [30 fpm])

Resolution: 0.1°C

Temperature Compensation Range

Temperature Compensation Range: The F550 is a thermal airflow sensor; it is sensitive to changes in air density and indicates velocity with reference to a set of standard conditions (21°C (70°F), 760mmHg (101.325kPa), and 0%RH). The F550 has been designed so that when used over the stated temperature compensation range, the sensor indicates very close to actual air velocity and minimal compensation is only required to account for changes in barometric pressure or altitude.

Part Number Format

F550 - H - V - O - C

8 Sidewall

9 Inline

10 Board Mount

Miniature board mount sensors can be soldered or socket-mounted to your printed circuit board.

H = Sensor Head
8 = Sidewall
9 = Inline
10 = Board Mount (RFS300)

V = Velocity Profile
A = 0.15 to 1.0 m/s [30 to 200 fpm]
B = 0.5 to 10.0 m/s [100 to 2,000 fpm]
C = 1.0 to 20.0 m/s [200 to 4,000 fpm]

O = Output Configuration, Analog
0 = No analog
1 = 0 – 5 VDC air velocity output only
2 = 0 – 5 VDC air velocity & air temperature (dual outputs)
3 = 0 – 10 VDC air velocity output only
4 = 0 – 10 VDC air velocity & air temperature (dual outputs)
7 = 4 - 20 mA air velocity only
8 = 4 - 20 mA air velocity & air temperature (dual outputs)

C = Communication
0 = No digital communication
1 = UART communication output (addressing available)
2 = I2C (3.3 VDC) communication output

Please see our F350/F450 Specialty sensors for alternative supply voltages.
F350 supply input: 4.5 - 15 VDC
F450 supply input: 19 - 29 VDC