

## Installation Instructions for the Honeywell Zephyr™ Analog Airflow Sensors: HAF Series – High Accuracy

ISSUE 2  
50045091

### GENERAL INFORMATION

#### CAUTION

##### IMPROPER USE

Do not use to sense liquid or fluid flow.

**Failure to comply with these instructions may result in product damage.**

#### CAUTION

##### IMPROPER CLEANING

- Avoid cleaning the sensor; however, if it must be cleaned use isopropyl alcohol and dry the device thoroughly before use. Cap the ports or connect housing to the ports before cleaning the sensor with alcohol. Using alcohol may remove the text on the sensor label; however, the label ID is hard coded inside the sensor.
- Do not use III Tri-chloroethane, methylene chloride, methyl pyrrolidone, or any oxidizing type acid such as formic acid.
- Do not use ultrasonic cleaning.

**Failure to comply with these instructions may result in product damage.**

#### CAUTION

##### LARGE PARTICULATE DAMAGE

Use a 5-micron filter upstream of the sensor to keep media flow through the sensor free of condensing moisture and particulates. Large, high-velocity particles or conductive particles may damage the sensing element.

**Failure to comply with these instructions may result in product damage.**

**Table 1. Absolute Maximum Ratings<sup>1</sup>**

Characteristic	Parameter
Supply voltage	-0.3 Vdc to 6.0 Vdc
Voltage on output pin	-0.3 V to Vsupply
Storage temperature range	-40 °C to 125 °C [-40 °F to 257 °F]
Maximum flow change	5.0 SLPM/s
Maximum common mode pressure	25 psi at 25 °C [77 °F]
Maximum flow	10 SLPM

#### NOTICE

Absolute maximum ratings are the extreme limits that the device will withstand without damage to the device. However, the electrical and mechanical characteristics are not guaranteed as the maximum limits (above recommended operating conditions) are approached, nor will the device necessarily operate at absolute maximum ratings.

**Table 2: Operating Characteristics**

Characteristic	Parameter	Note
Supply voltage	3.3 Vdc ±10%; 5.0 Vdc ±10%	–
Current draw	16 mA max. (no load)	–
Power:		
3.3 Vdc	40 mW typ. (no load)	–
5.0 Vdc	55 mW typ. (no load)	–
Operating temp. range	-20 °C to 70 °C [-4 °F to 158 °F]	–
Compensated temp. range	0 °C to 50 °C [32 °F to 122 °F]	1
Warm up time	30 ms	2
Calibration media	gaseous nitrogen	3
Reverse polarity protection	no	–

#### Notes:

1. Custom and extended compensated temperature ranges are possible. Contact Honeywell for details.
2. Warm-up time: time to the first valid flow measurement after power is applied.
3. Default calibration media is dry nitrogen gas. Please contact Honeywell for other calibration options.

**Table 3. Suggested Load**

Characteristic	Parameter
Minimum suggested resistance:	
3.3 Vdc	3.3 kOhm
5.0 Vdc	5.0 kOhm
Maximum suggested capacitance:	
3.3 Vdc	10 nF
5.0 Vdc	10 nF

**Table 4. Environmental Characteristics**

Characteristic	Parameter
Humidity	0% to 95% RH, non-condensing
Shock	100 g, 11 ms
Vibration	15 g at 20 Hz to 2000 Hz
ESD	Class 3B per MIL-STD 883G
Radiated immunity	Level 3 from (80 MHz to 1000 MHz) per spec IEC61000-4-3

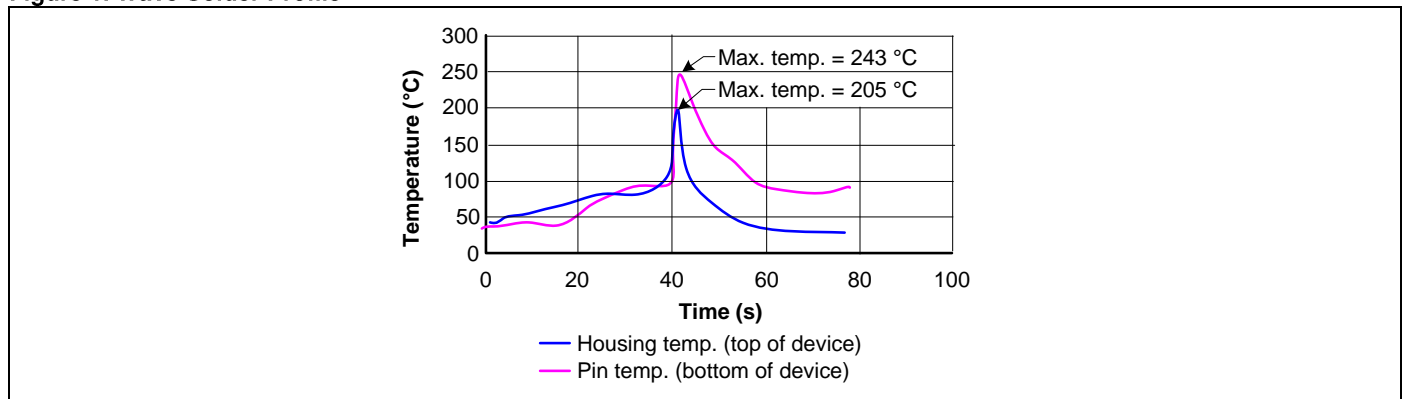
**Table 5. Wetted Materials**

Characteristic	Parameter
Covers	high temperature polymer
Substrate	PCB
Adhesives	epoxy
Electronic components	silicon, gold
Compliance	RoHS, WEEE

**Table 6. Recommended Mounting and Implementation**

Characteristic	Parameter
Mounting screw size	5-40
Mounting screw torque	0.68 N m [6 in lb]
Tubing for long port style	70 durometer, size 0.125 inch inside diameter, 0.250 inch outside diameter silicone tubing
O-ring for short port style	AS568A, Size 7, Silicone, Shore A 70
O-ring for long port style	AS568A, Size 10, Silicone, Shore A 70
Filter recommendation	5-micron filter upstream of sensor

**Figure 1. Wave Solder Profile**



**Figure 2. Long Port Style, Fastener Mount Dimensions (for reference only: mm [in]).**

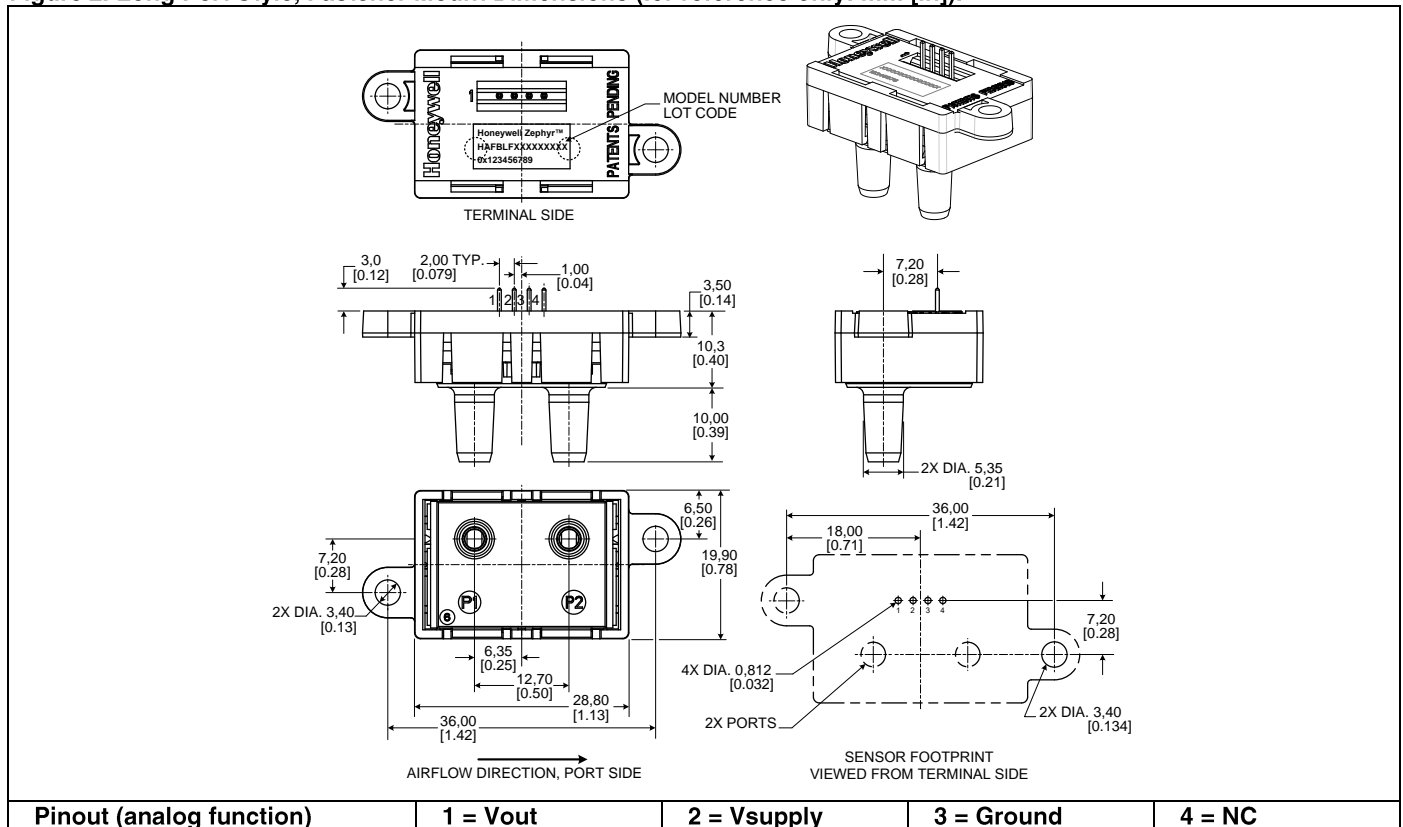


Figure 3. Short Port Style, Fastener Mount Dimensions (for reference only: mm [in]).

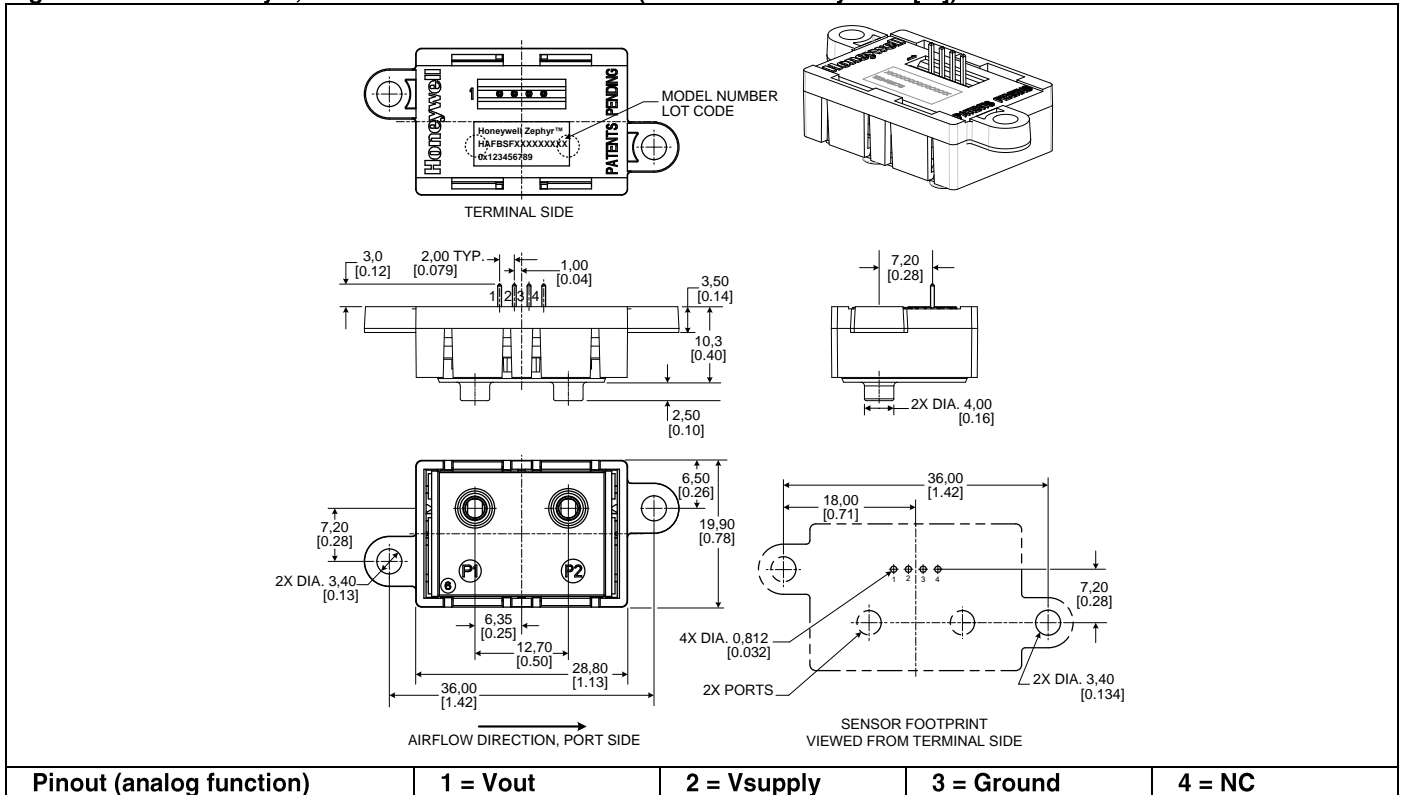
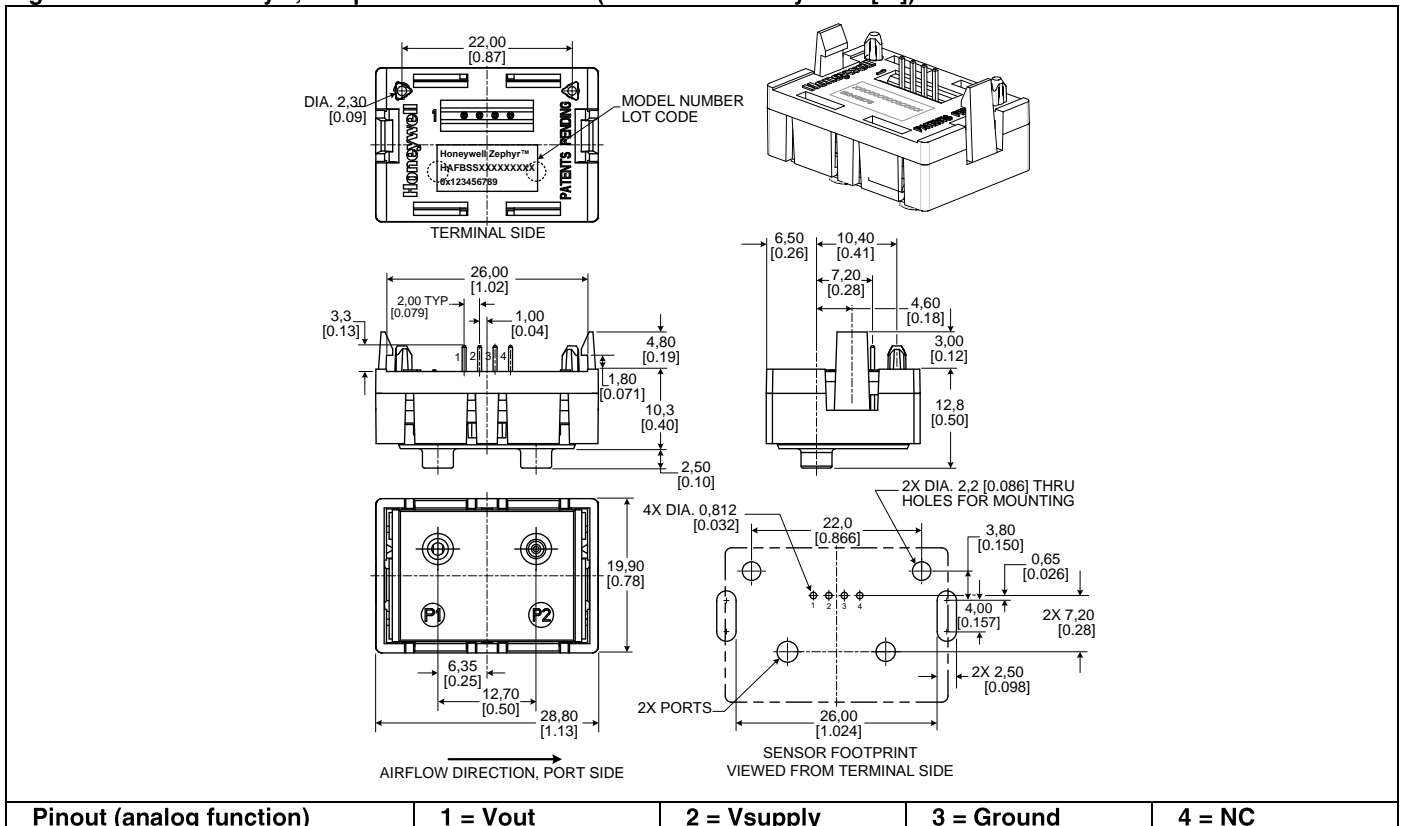


Figure 4. Short Port Style, Snap Mount Dimensions (for reference only: mm [in]).



## WARNING

### PERSONAL INJURY

DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

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**E-mail:** [info.sc@honeywell.com](mailto:info.sc@honeywell.com)

**Internet:** [www.honeywell.com/sensing](http://www.honeywell.com/sensing)

### Phone and Fax:

Asia Pacific	+65 6355-2828
	+65 6445-3033 Fax
Europe	+44 (0) 1698 481481
	+44 (0) 1698 481676 Fax
Latin America	+1-305-805-8188
	+1-305-883-8257 Fax
USA/Canada	+1-800-537-6945
	+1-815-235-6847
	+1-815-235-6545 Fax