Data Sheet

MEMS medical flow sensor alternate to Honeywell AWM720P1

Introduction

The S400 series is fabricated using a micro-electromechanical system (MEMS) flow sensor chip. It is suitable for the measurement of clean and relatively dry gases for various purposes. It realizes the digitization, intelligence and high safety of the equipment, and has the innovation of traditional industries.

Function and improvement; a wide range of flow ranges meet the flow measurement requirements of different equipment in the industry. High sensitivity, high reliability, high stability and low cost performance characteristics can promote the industry to develop energy-saving and intelligent.

The S400 series is based on a MEMS flow sensing unit, high-precision digital processing and calibration circuit (MCU), integrated high-resolution delta-sigma A/D converter and logic with internal calibration and MCU processor. The sensing signal is effectively collected in real time, and the accurate flow signal is obtained, and the corresponding compensation algorithm is processed internally, so that no external calibration compensation is required, and high-precision flow output can be ensured; the friendly digital output communication mode can be used by the user. It is very convenient to get the corresponding data information; the product application range is very broad.

Features

Wide flow range 0-500SLPM

High precision (1.5% F.S accuracy)

Linear output and temperature compensation

Maintain long-term stability with minimal zero drift

Solid-state sensing core (no surface void or fragile membrane), anti-blocking and pressure shock

Analog output (1 to 5 V) (I2C output is also available)

Fast response time (20ms response time)

Application

Ventilator
oxygen machine
Gas mask and respirator
Sprayer
Continuous positive airway pressure (CPAP) device
Anesthesia delivery
Leak detection
spectrometer
Mass flow controller
Environmental climate control
Fuel cell control

Maximum rating

Working temperature: -25 ° C to 85 ° C
Storage temperature: -40 ° C to 90 ° C
Humidity: 0~100%RH*
Impact resistant 100 g
The sensor is resistant to condensation

Electrical characteristics			
Test conditions: VIN = 12 ± 0.01 VDC, Ta = 25 ° C. Relative humidity: 40% <relative humidity <60% Maximum operating temperature range -25°C to +85°C			
	Flow range(1)	**Unit (2)**	**Maximum flow rate (m/s)**
S4003V	0-12	SLM	0.527
S4004V	0-20	SLM	0.877
S4005V	0-35	SLM	1.535
S4100V	0-50	SLM	2.193
S4101V	0-100	SLM	4.387
S4102V	0-150	SLM	6.58
S4103V	0-200	SLM	8.773
S4104V	0-300	SLM	13.16
S4105V	0-500	SLM	35.5

Specifications	Minimum	Default	Maximum	Unit
Supply voltage	8	12	24	VDC
Supply current	30		20	mA
Analog voltage output (3)	1		5	VDC
Zero voltage	0.95	1	1.05	VDC
Zero drift	—	—	0.2	%F.S
Resolution (4)	—	0.1	—	%F.S
load	—	100	—	KΩ
Accuracy	—	1.5	2	%F.S
Response time	—	20	30	mSec
Overall material	Silicon carbide, epoxy resin, polyphenylene sulfide, FR4, silicon as a seal			

1. Customizable range between 10SLM and 500SLM
2. SLM: Standard liters per minute. Standard conditions: 0 ° C and 1 atmosphere
3. In addition, the two-way airflow test can be customized, and the analog output is correspondingly changed. F(min)—F(max) corresponds to 1-5V output, and 0 flow corresponds to 3V;
4. Includes temperature drift and linearity error

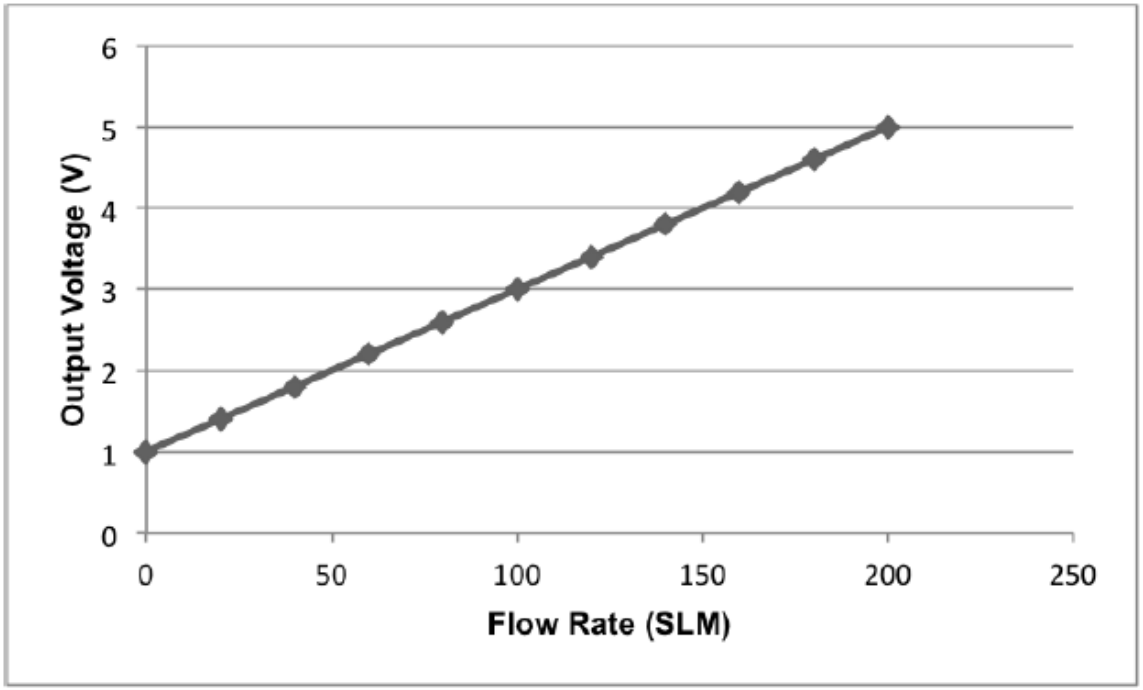
Linear Output

1. The unidirectional airflow mode: (calculation formula)

Flow = [(VOUT -1 V) / 4 V] × full scale flow

For example: CAFS4103V has a full-scale flow of 200 SLM. When the output voltage is read at 2.5V,

the instantaneous flow rate is [(2.5V-1V) / 4V × 200 SLM] = 75 SLM



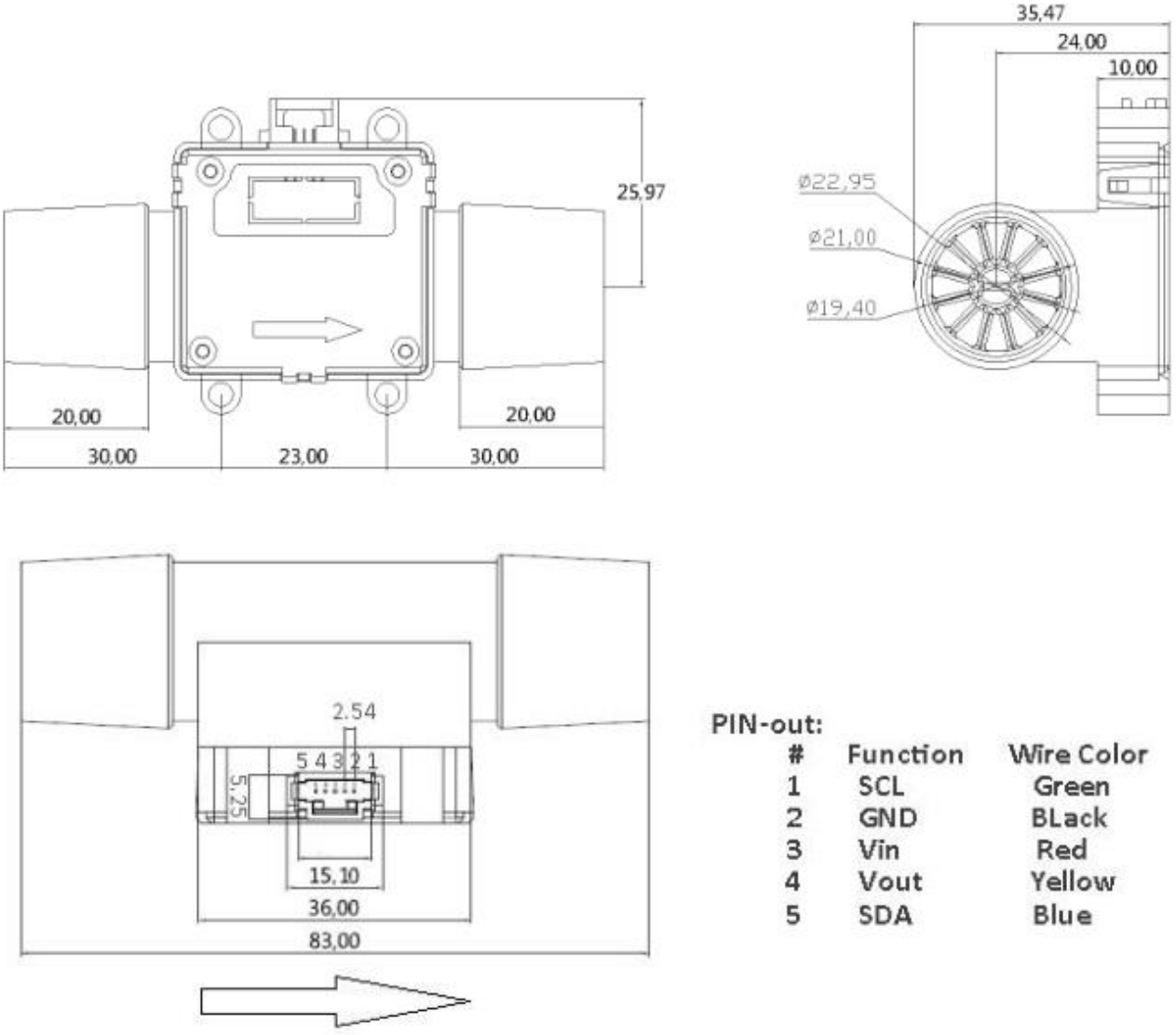
2. Two-way airflow mode: (calculation formula)

Forward flow = [(VOUT -3 V)/2 V] × full scale flow

Reverse flow = [(3 V- VOUT)/2 V] × full scale flow

Shell Size:

Note 1: The connector can be matched with a connecting line according to customer requirements.



PIN-out:

#	Function	Wire Color
1	SCL	Green
2	GND	BLack
3	Vin	Red
4	Vout	Yellow
5	SDA	Blue