

# SprintIR<sup>6S</sup>

## Ultra-Fast Response Carbon Dioxide Sensor

SprintIR<sup>6S</sup> is a high-speed response carbon dioxide sensor (20Hz) that can achieve 20 readings per second with a preheat time of less than 30 seconds. The sensor is designed to have only 2ml of sample capacity, enabling it to achieve a response speed six times faster than the current SprintIR.

The SprintIR<sup>6S</sup> is equipped with ranges of 0-5%, 0-20% and 0-100%, suitable for applications where rapid changes in CO<sub>2</sub> concentration need to be captured.

The SprintIR<sup>6S</sup> is smaller than 1 cubic inch in size, operates between 3.25 and 5.5V, and consumes only 35mW of power. The sensor The device can be selected to support either ventilation or diffusion, depending on the application scenario.

- Ultra-fast response rate-6 times faster than SprintIR\*
- Faster preheating time-less than 30s at the first reading
- High speed detection-20 readings per second (20Hz)
- Low power-35mW

\* Based on a step change in the circulation rate of 0.1 liters per minute and the 0 - 10% CO<sub>2</sub> concentration.



SprintIR<sup>6S</sup> CO<sub>2</sub> sensor

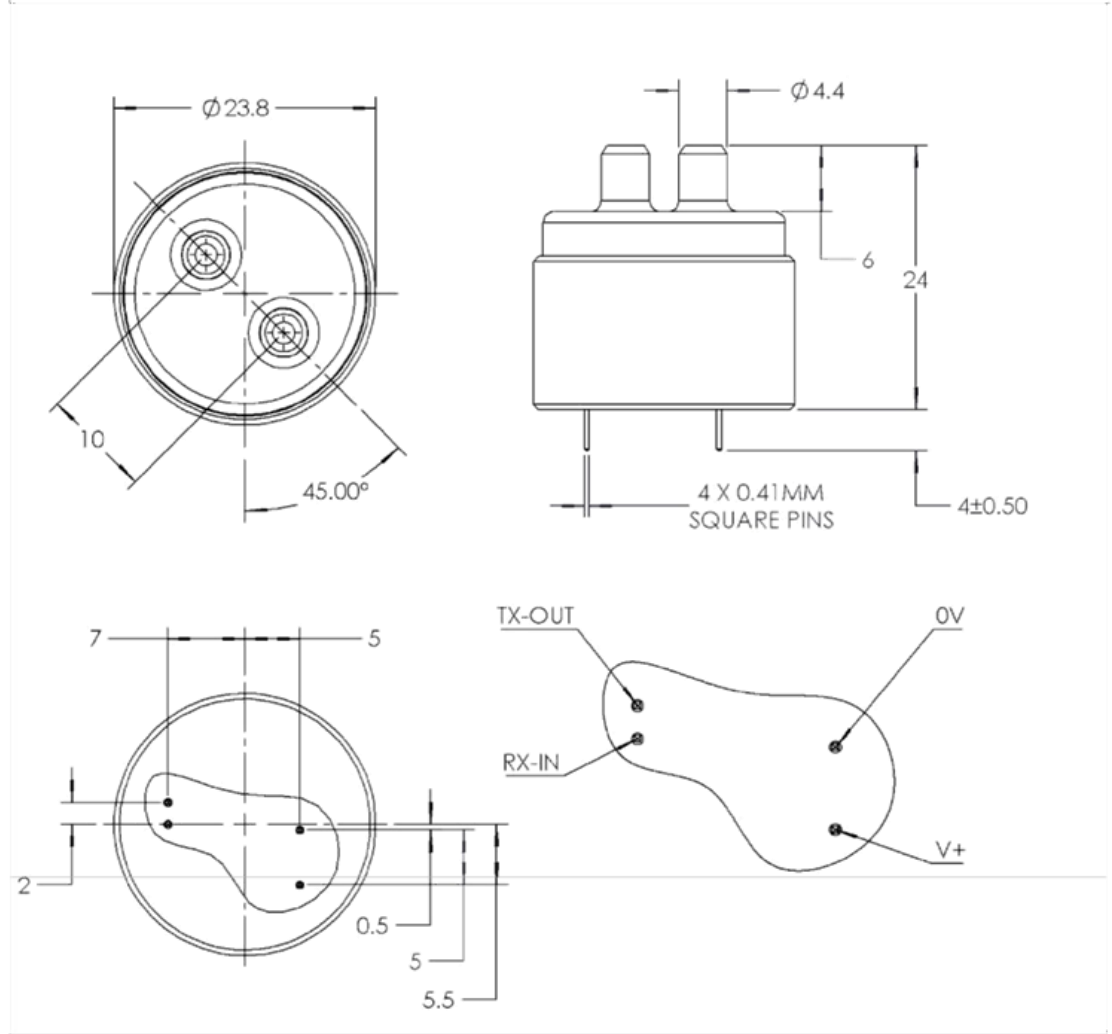
## specifications

Overall performance	
preheating time	<30 seconds
going	0°C to 50°C (standard) 0 Up to 95% RH, non-condensing
Storage recommendations	-30°C to +70°C
CO <sub>2</sub> measurement	
detection mode	Non-dispersive infrared (NDIR) absorption Gold coating optical path technology All solid state light source and detector technology
method of sampling	circulate
measuring range	0-5%, 0-20%, 0-100%
accuracy	± 70 ppm +/- -5% read <sup>1</sup> (100% range: ±300 ppm +/- -5% read <sup>1</sup> )
nonlinear	<1% full scale
Pressure dependency	Under normal atmospheric conditions, the reading is 0.13% per millimeter of mercury.
working pressure range	Barometric range. Lower or higher pressure requires further pressure compensation.
response time	Flow rate dependence-see figure below. Response time is also related to the setting of user-adjustable filter coefficients <sup>3</sup> .

**Electrical/mechanical**

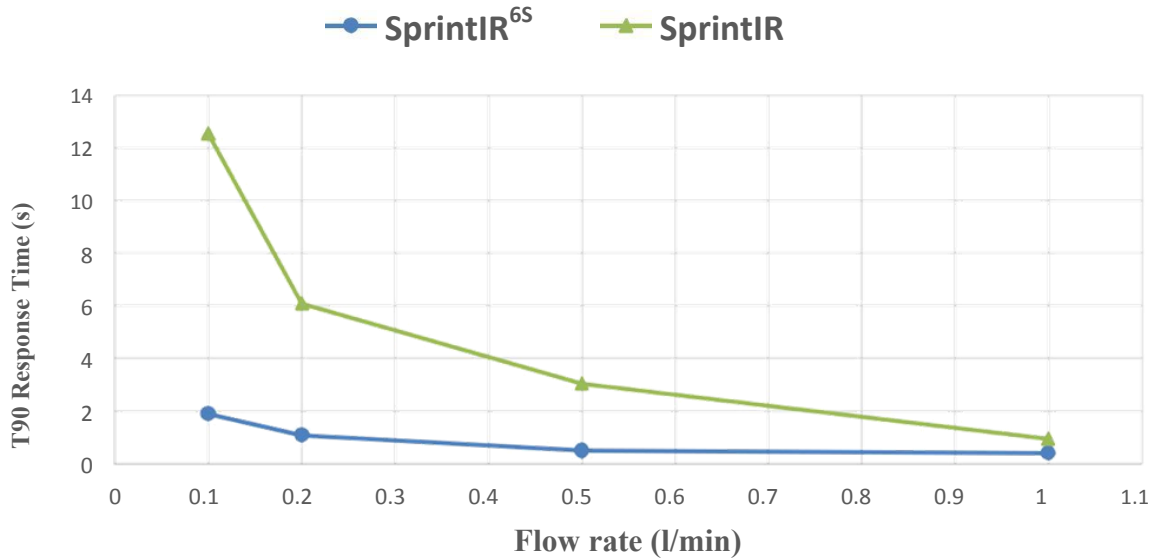
power input	3.25 Up to 5.5V. (Recommended 3.3V). Peak current 33mA <sup>4</sup> . The average current is less than 12mA <sup>4</sup> .
power dissipation	35 mW <sup>4</sup>

**3d view and wire overview**



Pin	Comments
0V	GND
V+	3V3 to 5V
RX-IN	Sensor Rx. 5V tolerant
TX-OUT	Sensor Tx. V <sub>oh</sub> = 3V

# T90 Response Time- SprintIR vs SprintIR<sup>6S</sup>



*T90 time measurement at 0 to 10% of CO<sub>2</sub> concentration. Digital filter turned off.*

**Note 1:** All measurements are made under standard conditions (standard temperature and pressure), unless otherwise stated.

**Note 2:** External pressure verification is required.

**Note 3:** The user can adjust the filter response.

**Note 4:** Power of a standard CO<sub>2</sub> sensor with 20 readings per second.