

DATA SHEET

CO₂ Sensors

Fast Response Range—SprintIR^{6S}



DESIGN • MANUFACTURE • CUSTOMISE • CONFIGURE

FEATURES

- Low power / energy consumption—35mW
- Measures up to 100% CO₂ concentration
- Ultra-fast response rate; 6X faster than the SprintIR^a
- High speed sensing; 20 measurements per second (20Hz)
- Sample volume of only 2ml
- Solid-state; no moving parts, no heated filaments
- Digital (UART) output



Supply Voltage



Power Consumption



Operating Temp



Output Digital



Response Time



BENEFITS

- Very fast response (see graph page 2)
- Ideal for very low power and battery applications
- Suitable for wireless, portable, wearable and self-powered systems
- Fits neatly inside compact instruments

TECHNICAL SPECIFICATIONS

Supply voltage	3.25—5.5V _{DC} (3.3V recommended)
Current	<15mA (average) 100mA Peak
Power consumption ^b	35mW
Output type	3.3V TTL level UART
Temperature	
Operating:	0°C to +50°C (standard) -25°C to +55°C (extended)
Storage:	-30°C to +70°C
Humidity	0—95% Rh, non-condensing
Start-up time	< 30 seconds

CO₂ MEASUREMENT SPECIFICATIONS

Sensing method	Non-dispersive infrared (NDIR) absorption
Sample method	Flow through adaptor
Measurement range	0—5%, 0—20%, 0—100%
Accuracy ^c	±70ppm / ±5% of reading (100% range ±300ppm ±5% of reading)
Measurement noise	<10% of reading (no digital filtering)
Pressure dependence ^d	0.15% of reading per mbar in normal atmospheric conditions
Operating pressure range ^e	500mbar to 2 bar with flow through adaptor
Response time (a step to change in gas level) ^f	Flow rate dependant; refer to graph overleaf
Update rate	20Hz

Need help? Ask the expert
Tel: + 44 (0)1236 459 020
and ask for “Technical”

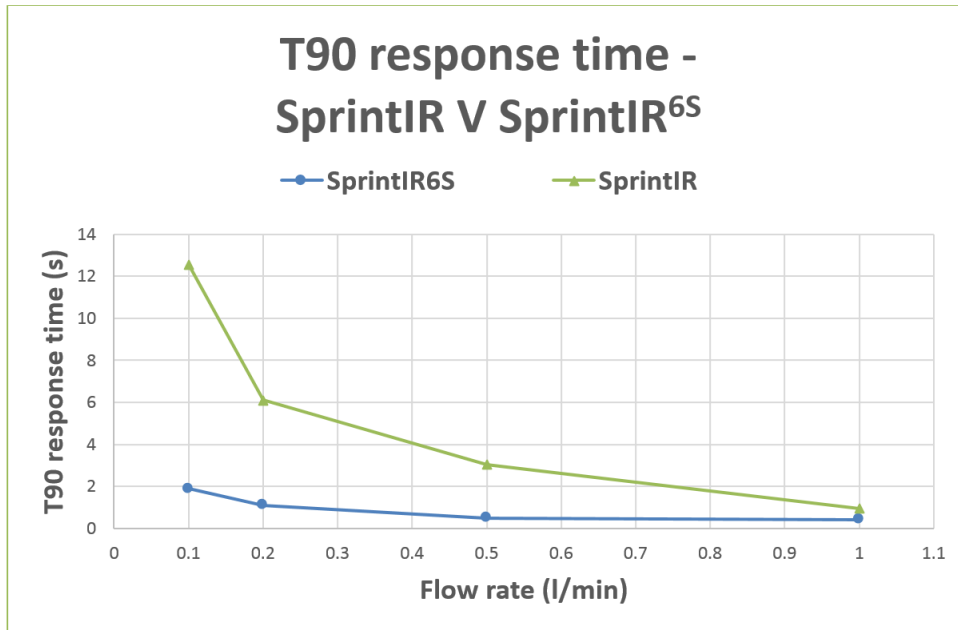


NOTES

- Based on 0.1 litres per minute flow rate and 0—10% step change in CO₂ concentration.
- Power measurements for standard CO₂ sensor with 20 readings per second.
- All measurements are at NTP unless otherwise stated.
- Calibrated for 1013mbar. External pressure calibration required.
- SST can supply advanced pressure correction advice when operating outside normal atmospheric conditions.
- Response time to a step change in gas level is dependent on application/filter/flow rate/diffusion.

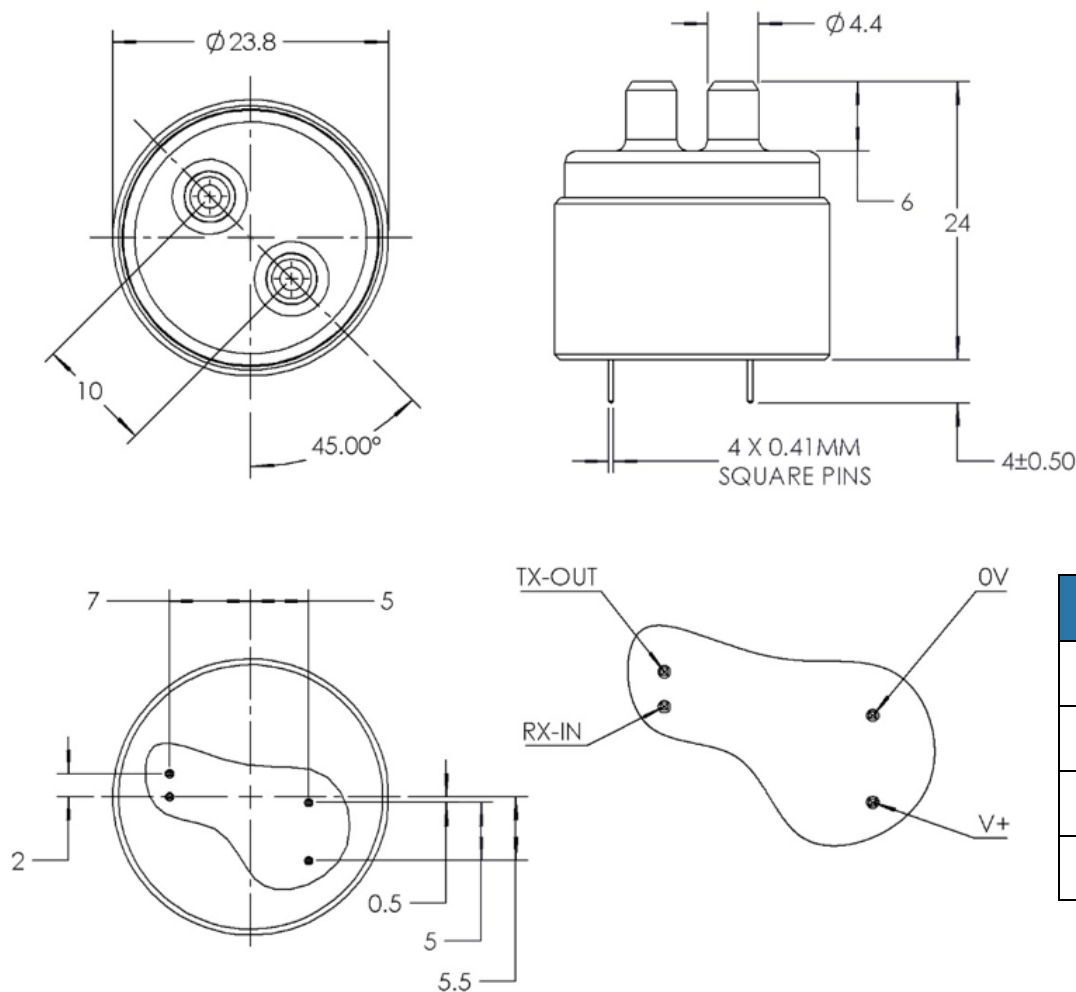
RESPONSE TIME GRAPH

NOTE: T90 time measured from 0 to 10% CO₂. Digital filter switched off.



OUTLINE DRAWING & ELECTRICAL CONNECTIONS

2x5 0.1" header. PIN 1 is identified on the dimensional drawing. All dimensions shown in mm.



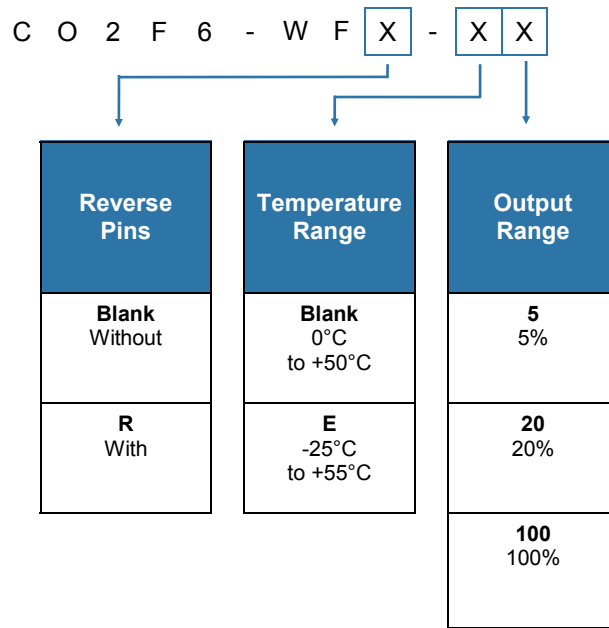
Pin	Designation
0V	GND
V+	3.3V to 5V
TX-OUT	UART Tx from sensor V _{oh} = 3V
RX-IN	UART Rx to sensor used for configuration

Pin 1 is identified on the dimensional drawing.
Pin 2 should not be connected.
Pins 4 and 6 do not require connection and are internally connected to GND.
The zeroing options are for hardware zeroing (both active low).

These functions can also be implemented by sending a serial command (recommended).
Typical connections for digital interface are GND, 3.3V, Rx and Tx.
Note that the V_h for the serial Tx line will be 3V regardless of the supply voltage.

ORDER INFORMATION

Generate your specific part number using the convention shown below. Use only the numbers that correspond to the sensor option you require — omit those you do not.



* **NOTE:** Temperature & humidity option not available on voltage output variant.

EXAMPLES:

- CO2F6-WF-5 = Without reverse pins, standard temperature range, 5% range.
- CO2F6-WR-E20 = With reverse pins, extended temperature range, 20% range.

CAUTION

Do not exceed maximum ratings and ensure sensor(s) are operated in accordance with their requirements.
Carefully follow all wiring instructions. Incorrect wiring can cause permanent damage to the device.
Do NOT use chemical cleaning agents.

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

INFORMATION

As customer applications are outside of SST Sensing Ltd.'s control, the information provided is given without legal responsibility. Customers should test under their own conditions to ensure that the equipment is suitable for their intended application.

For technical assistance or advice, please email:
technical@sstsensing.com

General Note: SST Sensing Ltd. reserves the right to make changes to product specifications without notice or liability.
All information is subject to SST Sensing Ltd.'s own data and considered accurate at time of going to print.