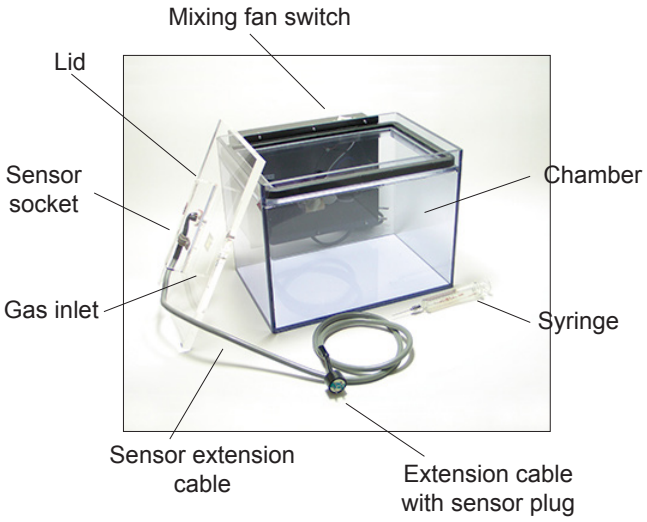
SR-3 - Bench Top Test Chamber

Features:

*** Ideal for quick gas testing of gas sensors**
*** Easy control of test gas concentration**
*** Simple structure and easy operation**

The **SR-3** is a compact bench top test chamber for use in evaluation testing of gas sensors using test gases of various concentrations without an additional gas supply control system. The intended concentration of test gas can easily be prepared in the chamber using the volume method. Injected gas is mixed with air by the built-in fan to achieve uniform gas concentration throughout the chamber.
In combination with the optional **SR-D1A** test unit, 8-series and 26-series Figaro gas sensors as well as pre-calibrated sensor modules can be quickly tested without users being required to develop driving electronics for each gas sensor. This test chamber is also compatible with Figaro's other sensor evaluation modules such as EM5042 and EM8100.

External View



Specifications:

Model No.	SR-3
Description	Bench top test chamber
Effective inner capacity	5,400ml
Power supply	100V or 220V AC
Power consumption	approx. 10W
Operating conditions	-10 ~ +50˚C
Dimensions	235W x 180D x 210H (mm)
Weight	approx. 2.5kg
Main material of chamber	Acrylic resin
Accessory	5ml plastic syringe

Operating Instructions:

(1) Ventilate the room where the test chamber is placed by using an electric fan or opening windows, and make sure that the indoor air is clear of gaseous contaminants.
(2) Connect the power cable to the power outlet. Open the lid, and turn on the mixing fan. Turn the fan off 2~3 minutes after contamined air inside the chamber is removed.
(3) Place sample gas sensors, the SR-D1A test unit (with gas sensor installed), or other sensor evaluation module into the chamber. 8-series gas sensors can be plugged into the sensor socket on the inner side of the lid. When using SRD-1A, plug the extension cable into the socket on the SR-D1A test unit (which remains outside the chamber). For more details on cable connections, please refer to the instruction manuals of the evaluation modules to be used.
(4) Close the lid with all cables being tucked firmly under the lid to prevent gas leakage.
(5) Connect power supply to sensor, test unit, or evaluation module. Monitor output voltage signals and wait until the output signals are adequately stabilized in air after the initial action period.
(6) Calculate the pure gas volume required to make the intended gas concentration using the volume ratio of the chamber's capacity to the pure gas volume to inject. Please refer to *Calculating Gas Volume to Inject* on the back page. Using a syringe, draw the calculated amount of gas from a pure gas bottle or from a gas sampling bag (not included).
(7) Insert the syringe needle into the gas inlet on the lid and inject test gas into the chamber.
(8) Turn on the mixing fan for about 30 seconds, then turn off the fan.
(9) Record output voltage readings in test gas.
(10) After measurement with test gas, open the lid and turn on the fan to evacuate the test gas from the chamber.

Calculating Gas Volume to Inject:

If a pure (100%) gas bottle is used for gas sampling, the injection volume V (ml) of pure gas required to make a test gas of concentration C (ppm) in the test chamber is calculated by the following formula:

$$V = 5{,}400 \times \frac{C}{1{,}000{,}000}$$

Example:

Test gas concentration	Injection gas volume
1000 ppm	5.4 ml
5000 ppm	27 ml

Cautions:

1) Before conducting evaluation tests of gas sensors using this test chamber, the test room should be adequately ventilated and indoor air pollution should be properly controlled. This is necessary since ambient room air is used to mix with test gas.
2) When combustible gases and/or toxic gases are used for testing, ensure sufficient ventilation of the test room to disperse test gases after testing. Such gases may present a safety hazard if not ventilated out of the test room.
3) Up to five gas sensors be placed and tested in the test chamber at a time, depending on the type of gas sensor.
4) If gas detection devices of relatively large volume are placed into the chamber all at the same time, the effective inner capacity of the chamber may decrease, resulting in errors in test gas concentrations.
5) Close the lid tightly to prevent chink and leakage. This chamber is designed for simplified testing with gas. For precise and accurate measurement requirements, please consider using a test chamber with a tighter seal.
6) Ammonia, VOCs, and organic solvent vapors are adherent gases which can easily adhere to the inner wall of the chamber. This test chamber is not suitable for such adherent test gases. If such test gas adheres on the inner chamber wall and is liquefied, gas concentration inside would be decreased and may become unstable. When adherent test gas is used, choose a test chamber made of other materials suitable for adherent gas and/or with an inner coating for reducing gas adherence.
7) In the event that adherent gases are injected into the test chamber, thoroughly purge the chamber of the gases adhered on the inner wall after sensor evaluation test is finished by ventilating for a sufficiently long time and/or other cleaning measures.
8) When combustible gas is used for test, the maximum test gas concentration in the chamber **should not exceed 50%LEL (Lower Explosion Limit)**. Never use high concentrations of toxic gases--if high concentrations of toxic gas diffuse into the test room when the lid is open, adequate ventilation equipment must be employed.
9) When combustible gases and/or toxic gases are used, keep away from any potential ignition sources. Additional safety measures should also be taken, such as installing gas detectors in the test room.
10) It is advisable to use this test chamber under normal room humidity. If gas sensors are tested using this test chamber in extremely low or high humidity conditions, such indoor humidity may influence measurement results.
11) Avoid breathing test gases.

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REV: 06/16