

# СИСТЕМА КОНТРОЛЯ ВОЗДУХА RCS PLUS



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## Application

Microbial air samplers of the series RCS® Plus (RCS® Plus, RCS® Plus Ex) are used to investigate the microbiological quality of ambient air, the functionality of air treatment equipment, and the effectiveness of decontamination measures. They are used routinely in places where specified airborne microbial counts as prescribed by law or through individual standards may not be exceeded.

The RCS® Plus microbial air sampler provides a simple means of testing concentrations of airborne microbes. The RCS® Plus has proved its value particularly in laminar flow areas and in sterile areas of industrial and hospital environments, where low concentrations of airborne microbes are to be expected. However, testing for airborne microbial counts can also be carried out in offices and at the workplace, i.e. making it possible to investigate the question of »sick building syndrome«.

The RCS® Plus Ex is the explosion-proof version of the RCS® Plus microbial air sampler. It is applied to areas where an explosion hazard may exist.



# Principles of Operation and Construction

The microbial air sampler of the RCS® Plus series employ the impaction principle according to Reuter (Reuter Centrifugal Sampler, RCS®). It facilitates the quantitative separation of air-borne microorganisms from sample volumes ranging from 10 to 1000 liters (1 m<sup>3</sup>).

The air stream enters the rotor at the front of the instrument, is set into rotation by the movement of the rotor, and separates microbes contained in the air onto the agar strip through centrifugal force. To prevent the occurrence of turbulence in the air inlet channel, the air outlet passage is directed to the rear, parallel with the instrument. The air flows at a constant rate which is approximately 50 L/min at a rotor speed of 6100 rpm. The instrument can be calibrated to ensure that the sampling volume remains exact.

The instrument is constructed with special attention to ergonomics. It operates independently of a main power supply using a 7.2 volt rechargeable nickel cadmium battery. The battery is easy to change through a door on the battery compartment at the rear of the unit.

Built-in electronic circuitry controls the speed and the running time of the motor and simultaneously monitors the battery voltage. Sampling volumes of 10, 20, 50, 100, 200, 500 and 1000 liters have been permanently programmed into the instrument. In addition, it is possible to enter 3 individually chosen sampling volumes of up to a maximum of 1999 liters. Operation of the instrument is via a keyboard with integrated display which is situated within easy reach directly in front of the carrying handle, allowing it to be operated with one hand. An infra-red sensor is incorporated into the electronics which permits remote control of the instrument. The instrument provides various

memory functions, giving the user a wide variety of important control and security functions.

The rotor, which contains the agar strip, is driven via a magnetic coupling flange. This enables it to be simply removed from the instrument. For safety reasons, a stainless steel protection cap is situated over the rotor, without which the instrument cannot function.

The instrument can be operated in a vertical or a horizontal position. For sampling in areas difficult to access, the instrument can be attached to a tripod by means of a threaded attachment in the base of the housing.

## Technical Data

**Sampling principle:** Microbial air sampler of the RCS® series employ the impaction principle, whereby the air stream enters the rotor at the front of the instrument and the airborne microbes are separated onto the agar strip by centrifugal force.

**Measurement range:** 1–1999 liters (recommended measurement range 10–1000 liters)

**Air flow-rate:** approx. 50 L/min

**Instrument precision:**  $\pm 5\%$

**Sample volume:** 7 volumes in memory in ascending order of 10, 20, 50, 100, 200, 500 and 1000 liters. 3 positions in memory, individual selectable from 1 to 1999 liters. The accuracy of sampling volume is achieved through calibration.

**Rotor speed:** approx. 6100 rpm

**Maximum allowable axial force on rotor shaft:** 30 Newtons

**Power supply:** Rapid charging 7.2 V nickel cadmium battery (charging time 1 hour)

**Automatic power-off:** The instrument switches itself off automatically after 8 minutes

### Materials:

- **Housing:** polycarbonate; resistant to 70% ethanol
- **Rotor:** anodized aluminium; autoclavable
- **Protection cap:** stainless steel; autoclavable

**Weight:** approx. 1500 g with battery pack (3.3 lbs)

### Miscellaneous:

- Operation via keyboard panel with integrated display
- Thread connection for tripod
- Infra-red remote control sensor
- Can be calibrated using the Anemometer (traceable to PTB, Physikalisch Technische Bundesanstalt)
- Errors indicated via display and acoustic signal
- Memory function for residual sampling volume and last sampling volume processed



## 8 Accessories

The wide range of accessories available for the RCS® Plus microbial air sampler makes operation of the instrument even more convenient:

### ① HYCON® Anemometer

(Art. No. 1.44205.0001) portable air flow-rate measurement device for calibrating the RCS® air samplers

### ② Adhesive tapes

(Art. No. 1.44208.0001) for complete sealing of the air inlet apertures on the rotor

### Tripod (not shown)

(Art. No. 1.44209.0001) for operation in height up to 3 meters

### ③ Tripod adapter

(Art. No. 1.44169.0001) for standard tripod

### ④ Table-top Tripod

(Art. No. 1.44210.0001) for horizontal operation of the Air Sampler on very smooth surfaces to minimize vibrations

⑤ **Battery recharger**

230/240 V: Art. No. 1.44241.0001

110 V: Art. No. 1.44251.0001 for rapid charging of the battery pack/Ni/Cd 7.2 V and 9.6 V

⑥ **Battery pack Ni/Cd 7.2 V**

(Art. No. 1.44252.0001) 7.2 V spare rechargeable battery

⑦ **Sterile sleeves**

(Art. No. 1.44199.0010, pack of 10) for protecting the instrument against transmission of contaminants

⑩ **Agar strips**

⑧ **Rotor, complete**

(Art. No. 1.44223.0001) autoclavable spare rotor

⑨ **Protection cap**

(Art. No. 1.44225.0001) autoclavable spare protection cap

**Battery Decharger** (not shown)

(Art.-Nr. 1.44221.0001) for complete discharging of battery pack to avoid the "memory-effect"

Item	Article No.	Description
TC	1.44253.0050	Tryptic Soy Agar; for determination of total counts
TSM	1.44240.0050	Modified Tryptic Soy Agar with neutralizers for disinfectants and growth supplements; for determination of total counts including fastidious and sublethal damaged airborne microorganisms
TC-γ	1.44226.0040	Double-wrapped, γ-irradiated Tryptic Soy Agar; for determination of total counts in aseptic environments
TCI-γ	1.44228.0040	Double-wrapped, γ-irradiated Tryptic Soy Agar with neutralizers; for determination of total counts in aseptic environments with peroxide containing air
PEN-γ	1.44109.0040	Double-wrapped, γ-sterilized Tryptic Soy Agar with Penase; for determination of total counts in antibiotics containing air in aseptic environments
LAC-γ	1.44108.0040	Double-wrapped, γ-sterilized Tryptic Soy Agar with Lactamator and Penase for inactivation of a broad range of β-Lactam antibiotics; for determination of total counts in antibiotics containing air in aseptic environments
YM	1.44242.0050	Rose Bengal Agar with streptomycin and chloramphenicol; for determination of yeast and molds
SDX	1.44243.0050	Sabouraud Dextrose Agar with modified Pharmacopeia formulation; for determination of yeast and molds
SDX-γ	1.44244.0040	Double-wrapped, γ-irradiated Sabouraud Dextrose Agar with modified Pharmacopeia formulation; for determination of yeast and molds in aseptic environments
DG-18	1.44245.0025	Dichloran Glycerin Agar; for determination of yeast and molds
S	1.44102.0025	Mannitol Salt Agar; for determination of <i>staphylococci</i>
C	1.44099.0025	MacConkey Agar; for determination of coliform bacteria

# Special Notes for the Explosion Proof version of RCS® Plus Ex

The RCS® Plus Ex microbial air sampler intended for use in explosion hazard areas, differs in its outward appearance from the non-explosion proofed version in its black casing. Further identification can be found on the type plate of the instrument.

The RCS® Plus Ex is designed as an intrinsically safe instrument according ignition protection class „ib“ corresponding EN 60079-11:2007. It is approved for:

- Hazardous explosive gases, vapors or mists (not dust or in underground parts of mines) (Equipment Group IIB, EN 60079-0:2009).
- In areas where hazardous explosive gases or vapors may occur (Equipment Category 2, EN 60079-0:2009).
- Corresponding the Temperature Class T3 comprising substances with an ignition temperatures of more than 200 °C.

## Permissible Areas

The RCS® Plus Ex is permitted in areas with following substances are used: Acetone, ethane, ethyl alcohol, ethyl chloride, ethylene, 1,2 ethylene chloride, ethylene oxide, ammonia, petroleum ethers, benzene (pure), n-butane, n-butyl alcohol, dicyclohexanone, Diesel fuels, acetic acid, acetic anhydride, heating oils, n-hexane, carbon monoxide, methane, methanol, methyl chloride, phenol, propane, n-propyl alcohol, hydrogen sulfide, town gas, toluene.

## Limitation of use

The instrument is not approved for use in areas with: Ethyl ether, Acetaldehyde, Carbon disulphide (Ignition temperature < 200 °C), Hydrogen, acetylene (Explosion group IIC)  
For further information refer to VDE 0165.




## Technical restrictions


Due to safety reasons the RCS® Plus Ex microbial air sampler has no beeper inside.

## Repairs

Repairs have to be done only from the manufacturer or in an approved repair shop. In the case of unauthorized repairs or exchange of parts the approval for use in hazardous areas will expire.

## Labeling

 II2G Ex ib IIB T3  
PTB 04 ATEX 2025



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