



# TRIO.BAS<sup>TM</sup>

BIOLOGICAL AIR SAMPLER

**The most complete line  
of active microbial air  
sampling instruments  
available**

 **HARDY**  
DIAGNOSTICS  
*A Culture of Service™*



# TRIO.BAS<sup>TM</sup>

BIOLOGICAL AIR SAMPLER



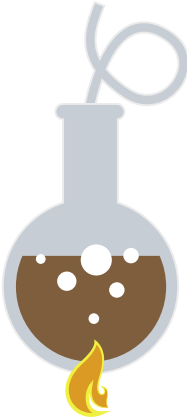
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### Applicable Industries:

- Pharmaceutical/  
Biotechnology
- Compounding Pharmacy
- Medical Device  
Manufacturer
- Sterile Product Packager
- Hospital/Surgical
- Tissue Lab
- Food/Beverage/Dairy
- Cannabis
- Aerospace
- Cosmetics/Personal Care

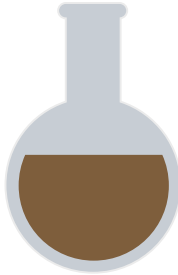
# The Discovery of Airborne Organisms



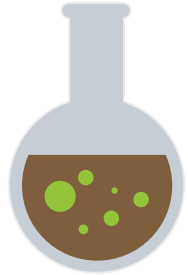
**BROTH IS BOILED**



**BROTH REMAINS FREE OF MICROORGANISMS**



**CURVED NECK IS REMOVED**



**MICROORGANISMS GROW IN BROTH**

Lazzaro Spallanzani in the 1700's, and Louis Pasteur in the 1800's, were the two scientists who first demonstrated the presence of microorganisms in the air after several years of experimentation. After three centuries, it is now possible to perform the same test in a few minutes. Presenting the new generation of microbial air samplers, by the original engineers of the first portable air samplers introduced over 45 years ago.

**Spallanzani**



**Pasteur**



# Principles

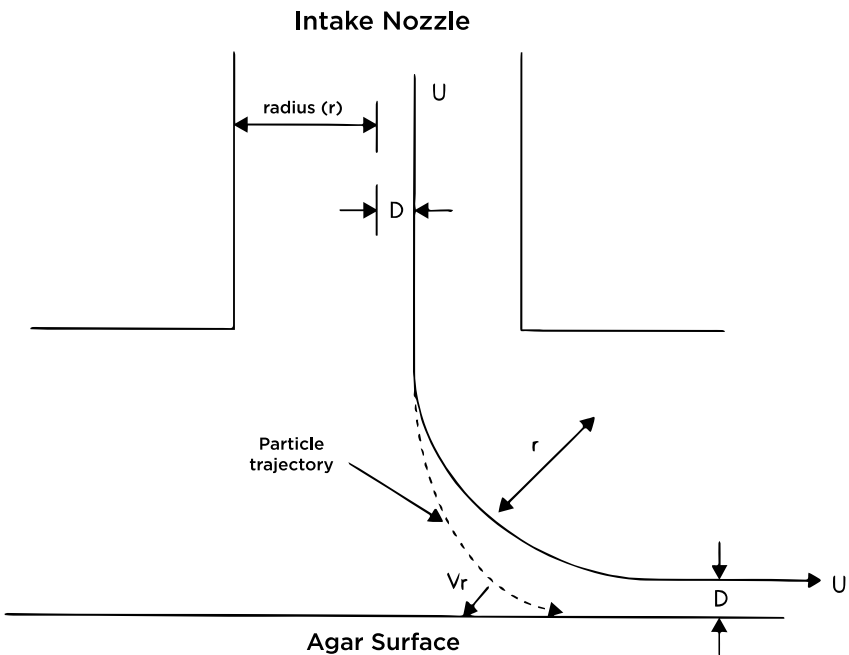
## Principle of microbial air sampling by impact method on agar plate

Air, containing microbe-carrying particles, is aspirated and accelerated through an intake and directly towards the surface of a plate. As the air turns away from the agar surface, the microbe-carrying particles that cannot follow the flow are impacted. The plate containing agar is then incubated for the appropriate time and at the proper temperature. The resulting Colony Forming Units (CFU) are counted to evaluate the number of microbe-containing particles collected from a specific volume of air.

### How the microbe-carrying particles impact on an agar surface:

The aspirated air passes through an intake of the sampler head at a velocity of “U” and, as it approaches the agar surface, it turns. The arc of the turning circle has a radius of “r” which is assumed to be the same as the radius of the intake nozzle. The velocity around the curve is assumed to be “U”.

The microbe-carrying particle travels along the streamline and experiences a centrifugal force that causes it to move toward the agar surface of the plate.



(Fig. 1) Impaction of a particle on a surface after exiting a nozzle

# Regulations

## FDA Guidance:

According to FDA Guidance for Industry *Sterile Drug Products Produced by Aseptic Processing- Current Good Manufacturing Practice* on Active Microbial Air Monitoring: "...Assessing microbial quality of air should involve the use of active devices... We recommend that such devices be used during each production shift to evaluate aseptic processing areas at carefully chosen locations. Manufacturers should be aware of a device's air monitoring capabilities, and the air sampler should be evaluated for its suitability for use in an aseptic environment based on collection efficiency, cleanability, ability to be sterilized, and disruption of unidirectional airflow."

## USP Regulation <797>:

Issued by the non-profit US Pharmacopoeia (USP) and endorsed by the Joint Commission on Accreditation of Healthcare Organizations (JCAHO), USP Regulation <797> is the first enforceable standard for sterile compounding. Originally enacted on January 1, 2004, the latest version was enacted in 2008. Currently, a new revision is in process.

USP <797> is a broad regulation covering a variety of pharmacy policies and procedures; designed to reduce the number of patient infections due to contaminated pharmaceutical preparations.

USP <797> contains specific requirements for ongoing air and surface evaluation to ensure product sterility and safety for compounded sterile preparations (CSPs).

### Recommended Action Levels for microbial contamination:

## Viable Air Sampling

Classification	CFU/1000 liters of air
ISO Class 5	>1
ISO Class 7	>10
ISO Class 8 or worse	>100

## Surface Sampling

Classification	CFU/Contact plates
ISO Class 5	>3
ISO Class 7	>5
ISO Class 8 or worse	>100



If air or surface microbial contamination action levels are reached, taking immediate action will help to quickly eradicate threats and mitigate risks to patient health.

# Regulations

## Suggested frequency and microbial recovery rates for aseptic processing areas

### The USP <1116> - The United States Pharmacopeial Document

Table 2: Suggested Frequency of Sampling for Aseptic Processing Areas

Clean Room/RABS	
Sampling Area/Location	Frequency of Sampling
<b>Clean Room/RABS</b>	
<i>Critical zone (ISO 5 or better)</i>	
Active air sampling	Each operational shift
Surface monitoring	At the end of the operation
<i>Aseptic area adjacent critical zone</i>	
All sampling	Each operating shift
<i>Other nonadjacent aseptic areas</i>	
All sampling	Once per day
Isolators	
<i>Critical zone (ISO 5 or better)</i>	
Active Air Sampling:	Once a day
Surface Monitoring:	At the end of the campaign
<i>Non-aseptic areas surrounding the isolator</i>	
All sampling	Once per month

### The USP <1116> - The United States Pharmacopeial Document

Table 3: Suggested Initial Contamination Recovery Rates in Aseptic Environments

Room Classification	Active Air Sample (%)	Settle Plate (9cm) 4H Exposure (%)	Contact Plate or Swab (%)	Glove or Garment (%)
Isolator/closed RABS (ISO 5 or better)	<0.1	<0.1	<0.1	<0.1
ISO 5	<1	<1	<1	<1
ISO 6	<3	<3	<3	<3
ISO 7	<5	<5	<5	<5
ISO 8	<10	<10	<10	<10

Ideal for use in less critical environments



**Each kit includes:**

- Instrument
- Battery charger and cable
- Aspirating head
- Cover head
- LIGHT carrying case
- Calibration certificate



**Features:**

- Aspirating head with quick bayonet closure system for easy manipulation
- Light weight: Significantly lighter than industry counterparts
- Rechargeable via external port using standard wall charger
- Note: Sampling data must be manually recorded with the MINI

Cat. no.

MINI Kit, 100 liters/min., contact plate

BAS152K

MINI Kit, 100 liters/min., Petri plate

BAS153K

MINI Kit, 200 liters/min., contact plate

BAS162K

MINI Kit, 200 liters/min., Petri plate

BAS163K

# MINI for CompactDry™



**TRIO.BAS MINI**  
designed specifically  
for CompactDry™ media.



## Each kit includes:

- TRIO.BAS MINI air sampler
- Charging cable
- Stainless steel aspirating head
- Protective cover head
- Carrying case
- CompactDry™ plates sold separately. **See page 33.**

Cat. no.

CompactDry Kit, 100 liters/minute

BAS255K





Ideal for cleanroom use



**Each kit includes:**

- Instrument
- Induction battery charger and cable
- Aspirating head
- Cover head
- ROBUSTUS carrying case
- Calibration certificate
- IQ, OQ, PQ fillable document

**Features:**

- No plugs or external connections
- Delayed interval sampling and remote start capabilities
- Data transfer capability via Bluetooth  
*(Separate purchase required. See page 24)*
- **MONO certified to ATEX standards also available**

Cat. no.

MONO Kit, 100 liters/min., contact plate	BAS200K
MONO Kit, 100 liters/min., Petri plate	BAS201K
MONO Kit, 200 liters/min., contact plate	BAS205K
MONO Kit, 200 liters/min., Petri plate	BAS206K

**Achieve faster sampling times and better statistical results with the DUO!**



Ideal for cleanroom use



**Each kit includes:**

- Instrument
- Induction battery charger and cable
- Aspirating heads
- Cover heads
- ROBUSTUS carrying case
- Calibration certificate
- IQ, OQ, PQ fillable document

**Features:**

- No plugs or external connections
- Two aspirating heads for sampling on separate plates to determine bacterial and yeast/mold counts
- Programmable for simultaneous or interval aspirating times
- Data transfer capability via Bluetooth. *(Separate purchase required. See page 24)*
- **Ask about DUO certified to ATEX standards**

Cat. no.

DUO Kit, 100 liters/min., contact plate

BAS220K

DUO Kit, 100 liters/min., Petri plate

BAS221K

DUO Kit, 200 liters/min., contact plate

BAS225K

DUO Kit, 200 liters/min., Petri plate

BAS226K



# MONO & DUO cable

## WITH SAMPLING DATA TRANSFER CABLE

A solution to capturing data for facilities concerned with data transmissions, or that do not permit wireless transfer of information. Data from the instrument memory can be transferred to a PC via the included transfer cable and dedicated software (see Cat. no. BAS295 or BAS296, required for data download to another device).

### TRIO.BAS MONO with Sampling Data Transfer Cable

#### Each kit includes:

- Instrument
- Stainless steel aspirating head
- Protective cover head
- Charging and Transfer cables
- ROBUSTUS carrying case
- IQ, OQ, PQ fillable document



Cat. no.

MONO Kit, 100 liters/min., contact plate

BAS211K

MONO Kit, 100 liters/min., Petri plate

BAS212K

MONO Kit, 200 liters/min., contact plate

BAS213K

MONO Kit, 200 liters/min., Petri plate

BAS214K

### TRIO.BAS DUO with Sampling Data Transfer Cable

#### Each kit includes:

- Air sampler
- Two stainless steel aspirating heads
- Two protective cover heads
- Charging and Transfer cables
- ROBUSTUS carrying case
- IQ, OQ, PQ fillable document



Cat. no.

DUO Kit, 100 liters/min., contact plate

BAS222K

DUO Kit, 100 liters/min., Petri plate

BAS223K

DUO Kit, 200 liters/min., contact plate

BAS231K

DUO Kit, 200 liters/min., Petri plate

BAS232K



**The only active microbial portable air sampler currently on the market with three sampling heads.**

**Achieve faster sampling times and better statistical results with the TRIO!**

Ideal for cleanroom use



**Each kit includes:**

- Instrument
- Induction battery charger and cable
- Aspirating heads
- Cover heads
- ROBUSTUS carrying case
- Calibration certificate
- IQ, OQ, PQ fillable document

**Features:**

- Three aspirating heads with ability to sample before, during and after operations
- Able to collect samples on three different culture media plates or sample on separate plates of same medium to obtain statistically significant results according to GMP. Capture samples, continuously.
- No plugs or external connections
- Data transfer capability via Bluetooth  
(Separate purchase required. **See page 24**)

Cat. no.

TRIO Kit, 100 liters/min., contact plate	BAS240K
TRIO Kit, 100 liters/min., Petri plate	BAS241K
TRIO Kit, 200 liters/min., contact plate	BAS242K
TRIO Kit, 200 liters/min., Petri plate	BAS243K



# AIRBIO ONE and DUO

*The vertical design of AIRBIO instruments is ideal for work surface stability, and monitoring laminar air flow systems.*



The AIRBIO DUO holds two culture media plates for sampling with separate media at one time, or to program sampling before (at rest), during (in operation), and at the end of each processing cycle.



## Each kit includes:

- Air sampler
- Bluetooth capability
- Stainless steel aspirating head(s)
- Stainless steel protective aspirating head cover(s)
- Charging cable
- Data transfer cable
- Robustus carrying case
- Factory calibration certificate
- IQ OQ PQ fillable documents

## Features:

- Compliant according to EN/ISO 14698-1, GMP, GLP, USP, and data integrity CFR21 and GAMP-5
- Volume of aspirated air is either 100 liters per minute or 200 liters per minute
- Sample air intake volume programs from 30-2000 liters with 17 preset programs
- Use either standard culture media plates: Petri plates or contact plates
- IP65 rated protection from dust and water

Cat. no.

AIRBIO MONO 100 liters/min contact plate	BAS445K
AIRBIO MONO 100 liters/min Petri plate	BAS446K
AIRBIO MONO 200 liters/min contact plate	BAS447K
AIRBIO MONO 200 liters/min Petri plate	BAS448K
AIRBIO DUO 100 liters/min contact plate	BAS479K
AIRBIO DUO 100 liters/min Petri plate	BAS480K
AIRBIO DUO 200 liters/min contact plate	BAS481K
AIRBIO DUO 200 liters/min Petri plate	BAS482K

# Is a HEPA filter-equipped viable air sampler necessary for monitoring cleanrooms?

Active microbial air samplers for viable contamination monitoring in cleanroom isolators and RABS (Restricted Access Barrier Systems) should be designed to avoid contamination risk from the instrument.

The electrical motor of TRIO.BAS™ instruments does not produce particles if the manufacturer recommended cleaning procedures are followed during sampling preparation. Furthermore, expelled air flows out from the aspirating chamber without any contact with the internal parts of the instrument.

When permanently located in cleanroom isolators and RABS, TRIO.BAS™ instruments without HEPA filters are used without concern of contamination from particles.



Cat. no.

**TRIO.BAS MONO**  
Filter Kit, 100 liters/min.,  
contact plate

**BAS171K**

**TRIO.BAS MONO**  
Filter Kit, 100 liters/min.,  
petri plate

**BAS170K**



Cat. no.

**AIRBIO ONE Filter Kit,**  
100 liters/min.,  
contact plate

**BAS450K**

**AIRBIO ONE Filter Kit,**  
100 liters/min., petri plate

**BAS449K**

If the viable air monitoring plan involves transferring the air sampling instrument from different ISO classification environments with varied levels of microbial contamination (ISO Class 7 to ISO Class 5), a risk of cross-contamination is possible.

**Under such conditions, a HEPA filter equipped TRIO.BAS™ instrument, or a HEPA filter satellite option for use with RABS/ISOLATOR instrument formats, is suggested to avoid the transfer of particles from the inside of the aspirating chamber.**

TRIO.BAS™ HEPA filter formats include a replaceable HEPA filter fixed to the air outlet of the instrument or satellite to stop the potential transfer of particles.

Satellite for use with BAS268K, BAS269K, BAS270K, BAS271K



Cat. no.

Stainless steel satellite with HEPA FILTER, contact plate

BAS262

Stainless steel satellite with HEPA FILTER, Petri plate

BAS263K



A smoke/exhaust study confirms the expelled air is not re-aspirated by the same air sampler.

Cat. no.

Replacement HEPA filters, 10pk

BAS531

# RABS ISOLATOR and MULTIFLEX Systems

Specifically designed to meet Pharmaceutical and Biopharmaceutical Cleanroom Regulatory Requirements and Standards



\*Data transfer requires additional purchase of BAS296 software



## RABS ISOLATOR

### External Command Unit and One Satellite

with the ability to add up to two additional satellite kits

#### Each kit includes:

- Instrument
- Satellite aspirating head
- Stainless steel head cover
- Five meter long satellite attachment cable
- Charging and Data transfer\* cable
- Robustus carrying case
- Calibration certificate
- IQ OQ PQ fillable guideline documents

Cat. no.

RABS ISOLATOR 1 Satellite Pack, 100 liters/min., contact plate	BAS268K
RABS ISOLATOR 1 Satellite Pack, 100 liters/min., Petri plate	BAS269K
RABS ISOLATOR 1 Satellite Pack, 200 liters/min., contact plate	BAS270K
RABS ISOLATOR 1 Satellite Pack, 200 liters/min., Petri plate	BAS271K

### Standard Satellite Kits with Cables

#### Each kit includes:

- Satellite air sampling chamber
- Stainless steel aspirating head
- Stainless steel head cover
- Five meter long satellite attachment cable
- LIGHT carrying case

Contact.....BAS260K  
Petri.....BAS261K



### HEPA-Equipped Satellites

- Add one to three satellites
- Stainless steel HEPA satellite
- Stainless steel aspirating head
- Stainless steel head cover
- Five meter long satellite attachment cable
- One box of HEPA filters

Contact.....BAS262K  
Petri.....BAS263K

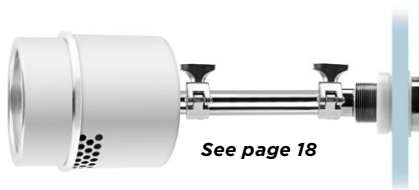


**Cannot be used concurrently with standard, or other, satellite configurations. Not for use with MULTIFLEX.**

### Satellites with Tri-Clamps

- Satellite and Tri-Clamp
- Aspirating heads and covers sold separately (BAS330/331 and BAS465)

Contact.....BAS320K  
Petri.....BAS321K



See page 18



- Compliant according to EN/ISO 14698-1, GMP and GLP
- Built in ISO 9001 Premises
- Data Integrity per CFR 21 and GAMP5
- IQ OQ PQ Guidance Documents Included
- Fabricated in AISI 316 Stainless Steel
- Multiple satellites allow use of separate media at the same time to determine bacterial and fungal counts

- Bluetooth data transfer capability
- Monitor separate cleanrooms with a single external command unit and satellites attached to 5 meter long cables
- Satellite designs allow sampling inside RABS or Isolators
- Optional 20 meter long satellite cables available (BAS272)
- Sample up to 70,000 liters on a single battery charge



## MULTIFLEX 1

**Command Unit + Built-in Aspirating Head**  
with the ability to add up to two additional standard satellite kits (pg \_)

**Each kit includes:**

- Instrument
- Stainless steel head cover
- Charging and Data transfer\* cable
- Robust carrying case
- Calibration certificate
- IQ OQ PQ fillable guideline documents

Cat. no.

MULTIFLEX 1, 100 liters/min., contact plate	BAS483K
MULTIFLEX 1, 100 liters/min., Petri plate	BAS484K
MULTIFLEX 1, 200 liters/min., contact plate	BAS485K
MULTIFLEX 1, 200 liters/min., Petri plate	BAS486K

*\*Data transfer requires additional purchase of BAS296 software*

## MULTIFLEX 1+2

**Command Unit + Built-in Aspirating Head and Two Independent Satellites**

**Each kit includes:**

- Instrument
- Three stainless steel aspirating heads with stainless steel head covers
- Two 5 meter long satellite attachment cables
- Charging and Data transfer\* cable
- Calibration certificate
- IQ OQ PQ fillable guideline documents

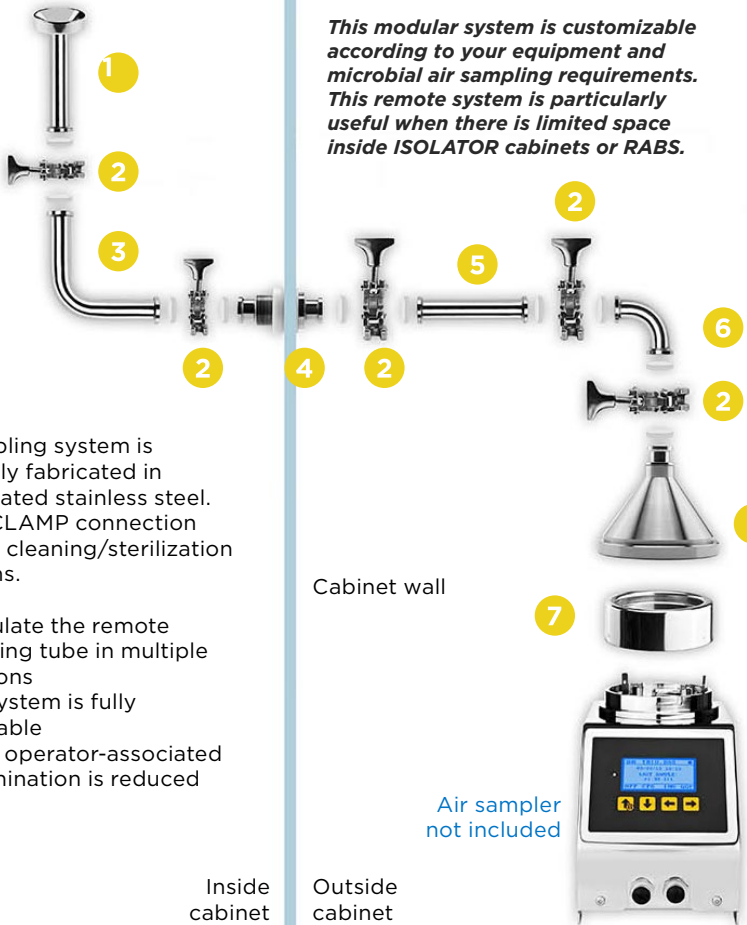


*\*Data transfer requires additional purchase of BAS296 software*

Cat. no.

MULTIFLEX 1+2, 100 liters/min., contact plate	BAS474K
MULTIFLEX 1+2, 100 liters/min., Petri plate	BAS475K
MULTIFLEX 1+2, 200 liters/min., contact plate	BAS476K
MULTIFLEX 1+2, 200 liters/min., Petri plate	BAS477K

# Remote Aspirating Tube System



*This modular system is customizable according to your equipment and microbial air sampling requirements. This remote system is particularly useful when there is limited space inside ISOLATOR cabinets or RABS.*

This sampling system is completely fabricated in AISI 316 rated stainless steel. The TRI CLAMP connection simplifies cleaning/sterilization operations.

- Manipulate the remote aspirating tube in multiple directions
- Tube system is fully sterilizable
- Risk of operator-associated contamination is reduced

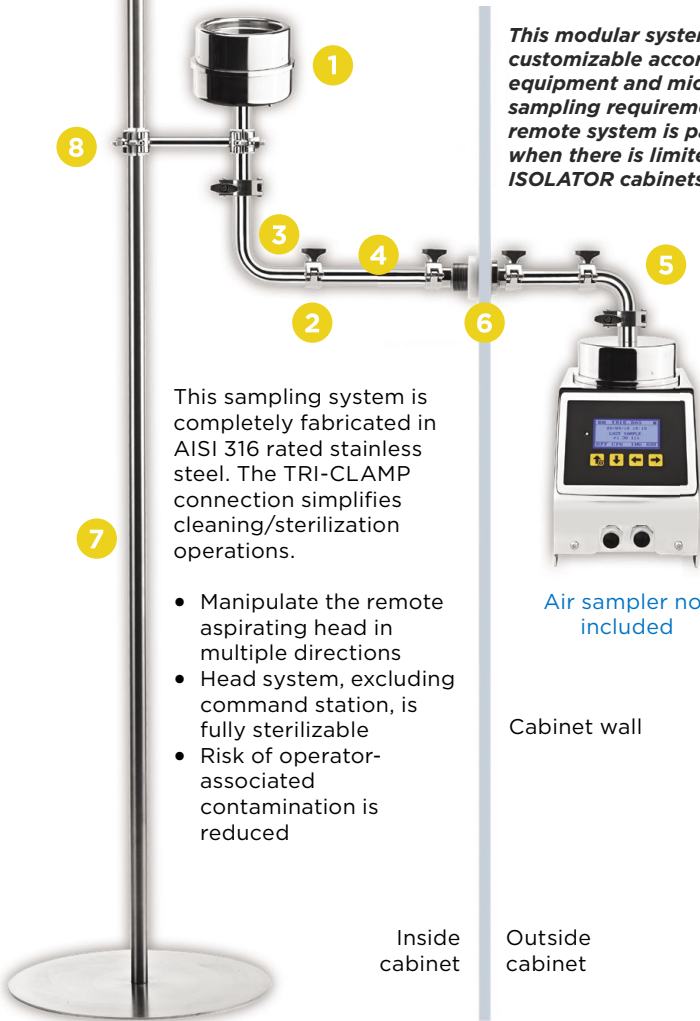
Inside cabinet      Outside cabinet

Air sampler not included

Cat. no.

1	REMOTE TUBE SYSTEM, stainless steel aspirating tube and end clamp with stainless steel aspirating bell and end clamp to connect the system to Air Sampler	BAS181
2	Stainless steel tri-clamp with silicone gasket	BAS193
3	Stainless steel 90° tube with 2 clamp ends, size wheelbase 88, 90mm, radius 25, 40mm	BAS195
4	Stainless steel wall connection with 2 clamp ends	BAS195
5	Stainless steel tube with 2 clamp ends, 10cm	BAS194
6	Stainless steel 90° tube with 2 clamp ends, size of wheelbase 40mm	BAS188
7	Stainless Steel Aspirating Head, Petri plate, shown as part of the MULTIFLEX 1 microbial air sampler	BAS331

# Remote Aspirating Head System



*This modular system is customizable according to your equipment and microbial air sampling requirements. This remote system is particularly useful when there is limited space inside ISOLATOR cabinets or RABS.*

This sampling system is completely fabricated in AISI 316 rated stainless steel. The TRI-CLAMP connection simplifies cleaning/sterilization operations.

- Manipulate the remote aspirating head in multiple directions
- Head system, excluding command station, is fully sterilizable
- Risk of operator-associated contamination is reduced



Air sampler not included

Cabinet wall

Inside cabinet

Outside cabinet

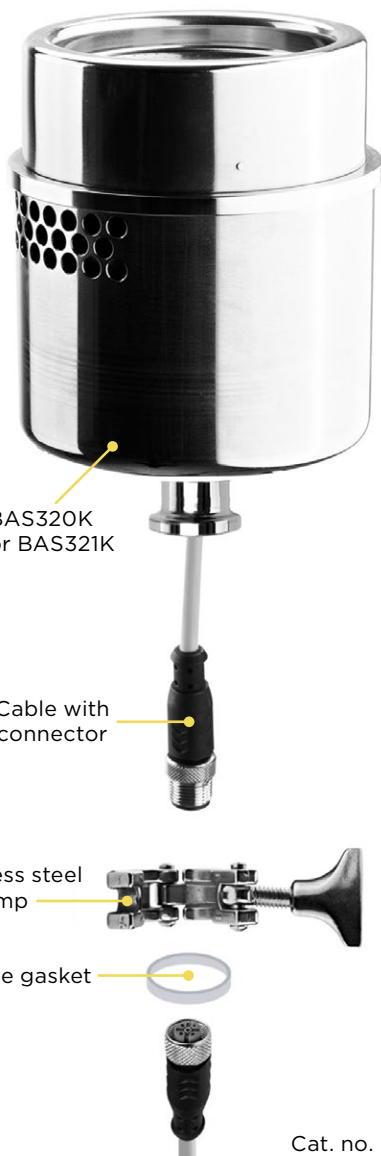
Cat. no.

1	Stainless Steel Contact or Petri format Aspirating Head	BAS191/192
2	Stainless Steel tri-clamp with silicone gasket	BAS193
3	Stainless Steel elbow 90° tube with 2 clamp ends - size wheelbase 88,90 mm, radius 25,40mm	BAS195
4	Stainless Steel tube with 2 clamp ends - 10cm length	BAS194
5	Stainless Steel elbow short tube 90° with 2 clamp ends - size wheelbase 40mm	BAS188
6	Stainless Steel wall connection with 2 clamp ends	BAS198
7	Stainless Steel floor pole - diameter 25 cm, 1 mt height	BAS199
8	Stainless Steel hexagonal pipe hook with gaskets and adapter	BAS197

# TRI CLAMP Satellite

**A customizable air sampling satellite option for use with RABS ISOLATOR or MULTIFLEX instruments. Ideal for use in cleanroom barrier systems where space is limited.**

- For integration with the RABS Isolator or MULTIFLEX instrument
- Compact design for use in RABS or isolators
- Simple electric cable
- Fabricated in AISI 316 rated stainless steel
- Easily mounted horizontally or vertically
- Tri-clamp coupling system for easy attachment and disassembly during maintenance and calibration
- Electric connection cable to the control unit remains protected inside the stainless steel tube, Cat. no. BAS190
- Use either Petri or contact plates. Adapts to ready-to-use technopolymer Daily Shift Heads



Cat. no.

Stainless steel tri-clamp aspirating head satellite for Contact plate, with stainless steel head cover and cable connector **BAS320K**

Stainless steel tri-clamp aspirating head satellite for Petri plate, with stainless steel head cover and cable connector **BAS321K**

Stainless steel tri-clamp with silicon gasket **BAS193**

Stainless steel tube with 2 clamp ends, 10cm length **BAS194**

Stainless steel wall connection with retaining nut, for walls max of 5mm thick **BAS198**

Stainless steel wall connection with retaining nut, for walls over 5mm thick **BAS189**



## Designed to test the presence of microorganisms in compressed air or gas lines.

- Calibrated regulator guarantees 100 liters per minute flow rate
- Autoclavable with no disassembly required
- Automated to end sample after programmed volume is reached\*
- Signal lets operator know sample is complete\*
- Sampling data is retrievable for download via proprietary printer or dedicated software (MONO) or to record manually (MINI).
- No glass valves or meters to crack or break

\*When used with MONO or MINI instrument



### Each kit includes:

- Stainless steel electro-valve
- Gas connection
- Stainless steel fixing system for air sampler
- MINI or MONO unit
- Induction battery charger and cable
- Aspirating head
- Head cover
- Two IQ, OQ, PQ fillable documents
- LIGHT carrying case

Cat. no.

TRIO.GAS System + MONO air sampler, 100 liters/min., contact plate **BAS650K**

TRIO.GAS System + MONO air sampler, 100 liters/min., Petri plate **BAS651K**

TRIO.GAS System + MINI air sampler, 100 liters/min., contact plate **BAS654K**

TRIO.GAS System + MINI air sampler, 100 liters/min., Petri plate **BAS655K**

## TRIO.GAS System Aspirating Chamber Kit

### Each kit includes:

- Stainless steel electro-valve
- Gas connection
- Stainless steel fixing system for air sampler
- Aspirating head
- Cover head
- Carrying case
- IQ, OQ, PQ fillable documents
- MONO or MINI NOT included

### Important Note:

If **manually** timed samples and hand recorded sampling data is acceptable, the MINI or MONO instrument is not necessary. Purchase the GAS system BAS652K or BAS653K, which includes aspirating gas chambers. Choose kit based on preferred plate size.



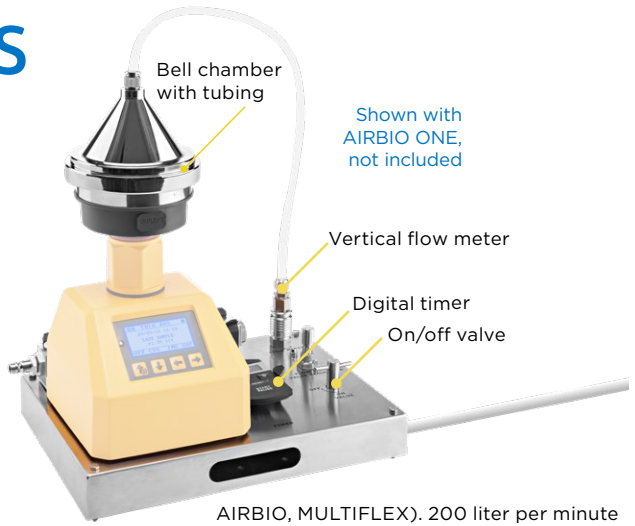
Cat. no.

TRIO.GAS System Aspirating chamber kit, contact plate **BAS652K**

TRIO.GAS System Aspirating chamber kit, Petri plate **BAS653K**

# FLO.GAS

**Test for the presence of microorganisms in compressed air and various gases supplied from tanks and pipes under pressure. The flow rate regulator valve must be adjusted prior to sampling.**



- Suitable for testing compressed air, nitrogen, CO<sub>2</sub> and Argon (Use a separate flow meter, BAS596, for CO<sub>2</sub> and/or Argon testing)
- Autoclavable
- Compatible with ASPI GAS CHAMBER (included), or 100 liter per minute air intake rate air samplers (TRIO.BAS,

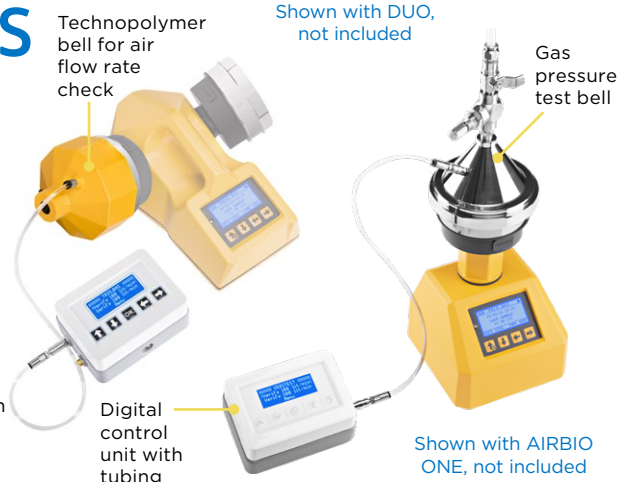
- AIRBIO, MULTIFLEX). 200 liter per minute samples require a separate air flow meter, Cat. no. BAS595
- Annual calibration recommended

FLO.GAS System, with flow meter, ASPIGAS chamber, Petri plate aspirating head and digital timer Cat. no. **BAS597**

FLO.GAS System, with flow meter, ASPIGAS chamber, contact plate aspirating head and digital timer Cat. no. **BAS598**

# VERI.GAS

**Two performances in one instrument: Test for the presence of microorganisms in compressed air/gas and verify the calibrated air flow rate is within specification. The flow rate regulator valve must be adjusted prior to sampling.**



- Suitable for testing compressed air and nitrogen
- Autoclavable
- Compatible with 100 liter per minute air sampler instruments (TRIO.BAS, AIRBIO, MULTIFLEX)
- For gas testing, use the AISI rated stainless steel bell chamber, valve, and regulator

- For calibration verification, use the technopolymer bell chamber
- Annual calibration recommended

VERI.GAS, for compressed gas test and air flow rate check - with digital control unit, s/s bell chamber for gas testing, technopolymer bell chamber for calibration specification check, connection tube and robust carrying case Cat. no. **BAS599**

# Calibration Control Equipment

Proper calibration of air sampling devices is a requirement per cGMP and the USP. Hardy Diagnostics' ISO 17025 certified lab is the factory trained and sole North American calibration service center for TRIO.BAS air sampling instruments.

For detailed information, please see the **TRIO.BAS Instrument Services** tab located under **Product Support** on our website: [HardyDiagnostics.com/air-sampler-calibration/](http://HardyDiagnostics.com/air-sampler-calibration/)

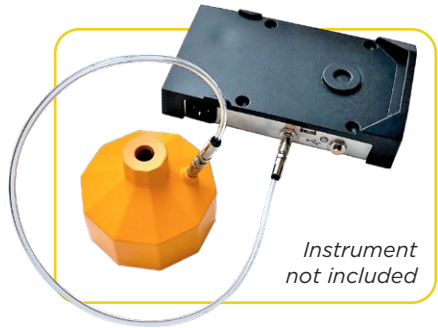
## SELF TEST

A manual verification instrument to check the precision of air flow rate. **For control purposes only**; not to take the place of annual, official calibrations. The base station induction battery charger with user **SelfTest** is equipped with a system that allows, regardless of auto-calibration already present in the instrument, the ability to check the state of precision of the air flow. **Only compatible with induction battery charging system instrument formats.**

### Calibration System includes:

- Calibration bell
- Connector cable and charger with outlet plug

For 100 liter/min. flow instrument.....BAS351  
 For 200 liter/min. flow instrument.....BAS352



## VERITEST

A manual verification instrument to check the precision of air flow rate. **For control purposes only**; not to take the place of annual, official calibrations. Ideal for verifying calibration on instruments with direct data transfer cables including the following: *BAS232K, BAS231K, BAS222K, BAS223K, BAS211K, BAS212K, BAS213K, BAS214K.*



Each .....BAS353

# DAILY SHIFT HEADS

**Individually packaged, sterile by irradiation, and includes a certificate of sterility assurance.**

For use on the MINI, MONO, DUO, TRIO and MULTISTATION units. Technopolymer aspirating heads are ready for immediate cleanroom use.



## **Benefits of Daily Shift Heads:**

- A daily certificate of sterilization assurance is requested by regulatory authorities as part of the usual auditing process. Use of DAILY SHIFT aspirating heads eliminates the cost of sterilization after each sample cycle and the consequent task of preparing the certificate of sterility
- DAILY SHIFT heads offer convenience and time savings during periods of unusually heavy workloads
- DAILY SHIFT heads offer peace of mind in case of autoclave breakage or unavailability
- DAILY SHIFT heads can be used on the same day, on the same shift, inside the same cleanroom
- Semi-transparent to confirm agar plate has been properly inserted
- Six year shelf life from date of sterilization

Cat. no.

DAILY SHIFT HEAD, contact plate, 27/bx

BAS340

DAILY SHIFT HEAD, Petri plate, 27/bx

BAS341



# Data Transfer Options

For TRIO.BAS instruments with Bluetooth or cable Data Transfer Capability, choose the preferred data download method. A separate purchase is required.

## Tablet Device\*

(for data transfer)  
Portable tablet for remote control of instrument(s), data download storage and transfer capabilities.

*\*Requires software BAS296*

Each .....BAS301



## Bluetooth Printer

Small footprint. Pair with instrument for immediate printout of sampling data, or choose to store data and print out sampling history at a later date.

Bluetooth printer, 11 x 8 x 5 .....BAS520

Paper rolls (57mm, 10/bx) .....BAS421



## Bluetooth Key\*

For transferring sampling data to a PC that does not include built-in Bluetooth feature.

*\*Requires software BAS296*

Each .....BAS420



# Data Transfer Software\*

## Biological Air Sampler Software (BAS)\*\*

\*One software license per PC is required. Multiple instruments can be used with a single software license.

Designed to facilitate paperless record keeping of all aspects of environmental monitoring, BAS software is the ideal TRIO.BAS instrument accompaniment for cleanroom environments.

This innovative software tool facilitates the collection and analysis of air sampling data, as well as tracability of the complete environmental monitoring sampling process. Include pictures of the CFU count from sampled media plates when the CFU camera instrument, BAS337 (pg 27), is incorporated.



- Make the transition from paper to paperless records and enhance standardization with BAS Software
- Simplifies the entry of user profiles and sampling schedules

Each .....BAS296

\*\*For Bluetooth capable Windows systems

## ALCOA Compliant Records of **Passive, Active, Compressed Air, and Surface Samples (P.A.C.A.S.)** are possible with BAS296 Software



Passive air sampling



Active air sampling with TRIO.BAS microbial sampler



CFU photo camera



Compressed air-gas sampling with a gas system instrument



Surface and garb sampling with contact plates

# Data Management Air Sampler Software (AS)\*\*

AS Software is a simple data transfer solution, suggested when the main objective is to transfer data to a PC for record keeping or analysis. AS software does not meet Data Integrity or ALCOA regulatory standards.



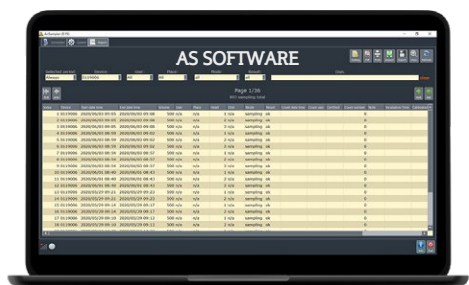
**\*\*For Bluetooth capable Windows systems**

- Transfer data from Bluetooth or data transfer cable-equipped instrument, or from the proprietary TRIO.BAS tablet, to a PC via Bluetooth

Each .....BAS295

Index	Device	Start date time	End date time	Volume	User	Place	Head	Dish	Mode	Result	Count number	Note	Incubation Time	Calibration
1	0119006	2021/06/03 09:05	2020/06/03 09:08	500	n/a	n/a	1	n/a	sampling	ok	0			
2	0119006	2021/06/03 09:05	2020/06/03 09:08	500	n/a	n/a	2	n/a	sampling	ok	0			
3	0119006	2021/06/03 09:05	2020/06/03 09:08	500	n/a	n/a	3	n/a	sampling	ok	0			
4	0119006	2021/06/03 08:59	2020/06/03 09:02	500	n/a	n/a	1	n/a	sampling	ok	0			
5	0119006	2021/06/03 08:59	2020/06/03 09:02	500	n/a	n/a	2	n/a	sampling	ok	0			
6	0119006	2021/06/03 08:59	2020/06/03 09:02	500	n/a	n/a	3	n/a	sampling	ok	0			
7	0119006	2021/06/03 08:54	2020/06/03 08:57	500	n/a	n/a	1	n/a	sampling	ok	0			
8	0119006	2021/06/03 08:54	2020/06/03 08:57	500	n/a	n/a	2	n/a	sampling	ok	0			
9	0119006	2021/06/03 08:54	2020/06/03 08:57	500	n/a	n/a	3	n/a	sampling	ok	0			
10	0119006	2021/06/01 08:40	2020/06/01 08:43	500	n/a	n/a	1	n/a	sampling	ok	0			
11	0119006	2021/06/01 08:40	2020/06/01 08:43	500	n/a	n/a	2	n/a	sampling	ok	0			
12	0119006	2021/06/01 08:40	2020/06/01 08:43	500	n/a	n/a	3	n/a	sampling	ok	0			
13	0119006	2021/05/29 09:21	2020/05/29 09:23	500	n/a	n/a	1	n/a	sampling	ok	0			
14	0119006	2021/05/29 09:21	2020/05/29 09:23	500	n/a	n/a	2	n/a	sampling	ok	0			
15	0119006	2021/05/29 09:14	2020/05/29 09:17	500	n/a	n/a	1	n/a	sampling	ok	0			
16	0119006	2021/05/29 09:14	2020/05/29 09:17	500	n/a	n/a	2	n/a	sampling	ok	0			
17	0119006	2021/05/29 09:10	2020/05/29 09:12	500	n/a	n/a	1	n/a	sampling	ok	0			
18	0119006	2021/05/29 09:10	2020/05/29 09:12	500	n/a	n/a	2	n/a	sampling	ok	0			

# Comparing AS SOFTWARE and BAS SOFTWARE



COMPARISONS	AS SOFTWARE BAS295	BAS SOFTWARE BAS296
Password protected login	X	✔
Connectivity of TRIO.BAS to PC via Bluetooth/cable	✔	✔
Remote control of TRIO.BAS instrument	✔	✔
Protected password report exporting	Free export file .pdf .csv .asd	Password export file .pdf .csv .bas .xml
Configuration of users and places (sample sites) via software	X	✔
Track and report on complete sampling process ( <b>P.A.C.A.S.</b> )	X	✔
Include photos of sampled agar plates in reports when utilizing the CFU photo camera	X	✔
Compliant to FDA 21 CFR part II data integrity and ALCOA regulatory standards	X	✔
Audit trail	X	✔

# CFU Photo Camera

Obtain culture media plate photos immediately before and after the manual CFU count with the CFU Photo Camera. The CFU Photo Camera integrates with BAS296 software to capture unalterable records, per 21 CFR part 11, of air sampling media plate count results, with the ability to export data to a pdf file or printed paper copy.



- Light System: LED technology
  - Camera resolution: full HD 1080p
  - Construction: technopolymer antibacterial treatment
  - Easy to connect to the PC
  - Works with BAS296 SOFTWARE only
- Each ..... BAS337



Before counting



After counting

# Accessories

## Technopolymer Standup Holder

for MINI

Each .....BAS370

for MONO, DUO  
and TRIO

Each .....BAS376

for AIRBIO DUO

Each .....BAS377



## Support stand for MULTIFLEX

A stainless steel support stand for stability and safety when positioning MULTIFLEX instruments to best capture laminar flow.

Each .....BAS379



## Stainless Steel Vertical Hook and Knob

For table, cart, or tripod. Adaptable to MINI, MONO, DUO, and TRIO.

12x15x25 cm.

Each .....BAS521



## Stainless Steel Wall/ Table Holder

For wall mount or table.

Each ..... BAS530



# Stainless Steel AISI 316 Tripod

150cm to 200cm. Ideal for cleanroom use. Device not included.

Each .....BAS523



## Maxi Floor Tripod

The sturdy MAXI Tripod goes to great lengths to facilitate sampling at heights up to 366cm (12 ft).

Each ..... BAS387

## Center Ball Head

An optional head for MAXI Tripod the to rotate the air sampler in different directions. Not recommended when extending the MAXI Tripod to its maximum height.

Each ..... BAS388



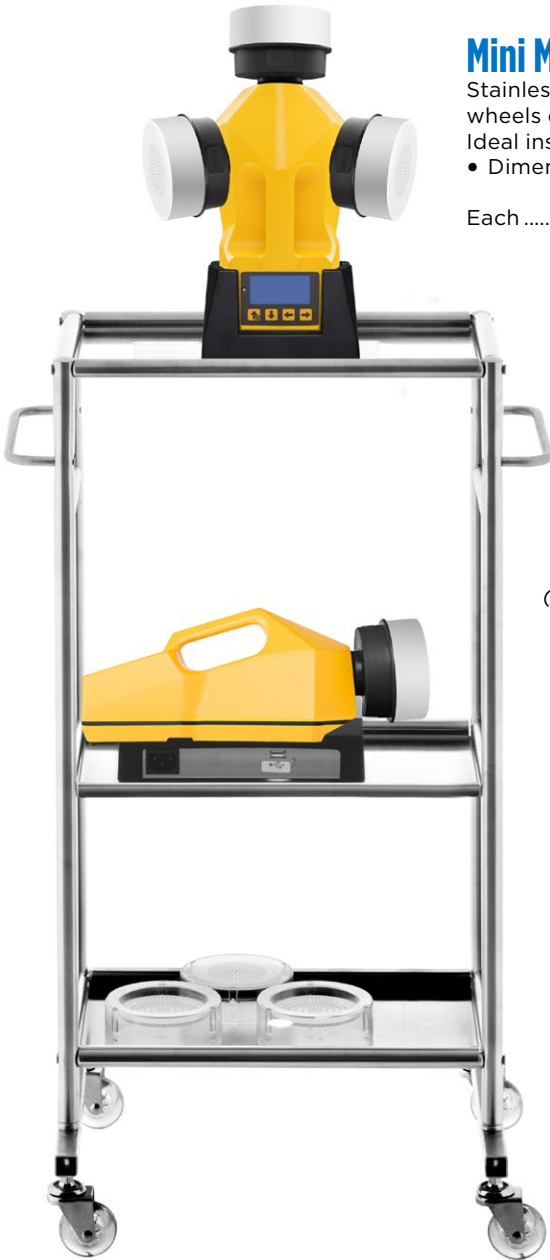
## Soft Carrying Case

Soft carrying case with tote handles for transporting the TRIO.BAS™ MINI or MONO.

Each .....BAS390



# Multi Holder Carts



## Mini Multi Holder Cart

Stainless steel AISI 316 cart on wheels equipped with three shelves. Ideal inside cleanroom.

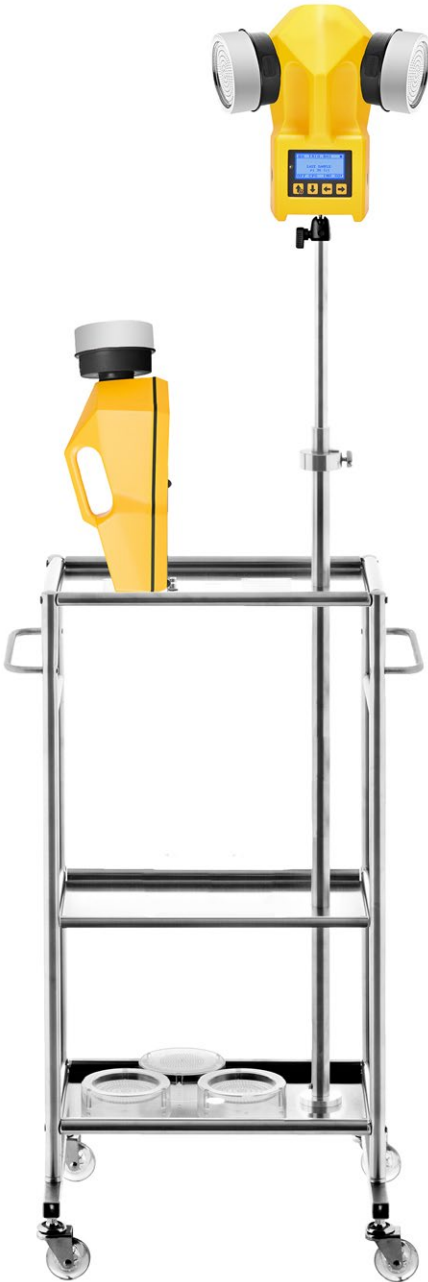
- Dimensions: 25x35x70cm

Each ..... BAS371

*(Pictured with TRIO, MONO and stand, not included)*



# Multi Holder Carts



## Maxi Multi Holder Cart

Stainless steel AISI 316 cart on wheels with fixed vertical hook holder and adjustable vertical extension post. Ideal inside cleanroom.

- Dimensions: 25x35x70cm
- Extension post adjustable height: 100cm to 210cm

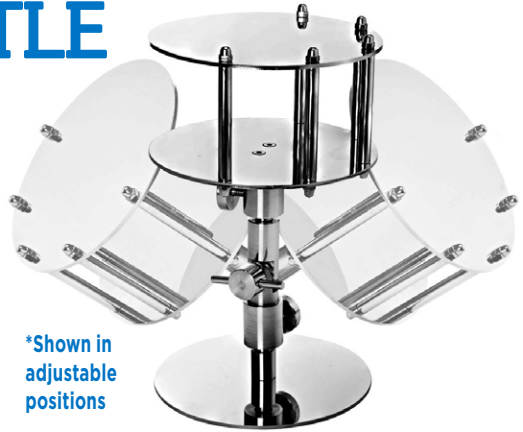
Each ..... BAS372

*(Pictured with DUO and MONO, not included)*

# TRIO.SETTLE

Ideal for settling plate exposure under unidirectional air flow

**Standardize your passive air monitoring protocols with TRIO.SETTLE. Fully autoclavable AISI 316 rated stainless steel support for Settling Plates.**



The TRIO.SETTLE ideally standardizes the position of the culture plate reducing the risk of contamination during sampling.

Position culture media (settling plates) for best articulation to provide a quantitative analysis of airborne microorganisms deposited over a set period of exposure.

**TRIO.SETTLE features:**

- AISI316 stainless steel fabrication
- Upper surface disc to accommodate an open culture plate during sampling
- Lower surface disc to accommodate the lid of the culture plate
- Adjustable to obtain different inclinations to the agar surface related to the direction of unidirectional airflow, avoiding laminar flow turbulence.
- Floor base model includes floor base and a 1 meter tall stainless steel tri pod

TRIO.SETTLE table plate stand	Cat. no. BAS367
TRIO.SETTLE floor plate stand	Cat. no. BAS368



## TRIO.BAS IN-REST Plate Holder

To facilitate operations and reduce contamination risks during sampling activities. Useful as a temporary support for culture media plates and/or lids, as well as TRIO.BAS instrument sampling heads.

Each .....BAS180

## Cleanroom Bag

Sterile bags ideal for safely containing and transporting Petri dishes, Contact plates, swabs, or other objects, outside of the cleanroom.

Each .....BAS381



# Prepared Culture Media and CompactDry™



## Irradiated, Triple-Bagged, Mono Plates

For air sampling and settling plates

### Tryptic Soy Agar (TSA) with Lecithin and Tween® 80, SterEM™, USP

For use as a general growth medium for establishing microbiological trends, alerts and action levels in biologically controlled environments.

15x100mm plate, 26ml fill, 10/pk .....W520

### SabDex (Sabouraud Dextrose) Agar, SterEM™, USP

For the cultivation of fungi. Irradiated, 15x100mm plate, triple bagged, 10/pk .....W565

## Irradiated, Triple-Bagged, Contact Plates

For air and surface sampling

### TSA with Lecithin and Tween® 80, USP

For the cultivation and enumeration of microorganisms

with Lok-Tight™ lid. Irradiated, triple bagged, 10/pk .....P520

### SabDex Agar with Lecithin & Tween® 80, USP

For the cultivation of fungi. With Lok-Tight™ lid.

Irradiated, triple bagged, 10/pk .....P595



## CompactDry™ Media

For TRIO.BAS CompactDry Instrument Only.

See page 16

### Total Plate Count

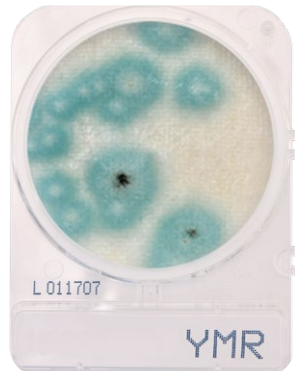
CompactDry™ TC, Total Plate Count, 240/box. .... 54081

### Yeast & Mold

CompactDry™ YM, Yeast and Mold, 240/box ..... 54083

### Yeast & Mold Rapid

CompactDry™ YMR, Yeast Mold Rapid, 240/box ..... 54084





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**TRIO.BAS**<sup>™</sup>  
BIOLOGICAL AIR SAMPLER