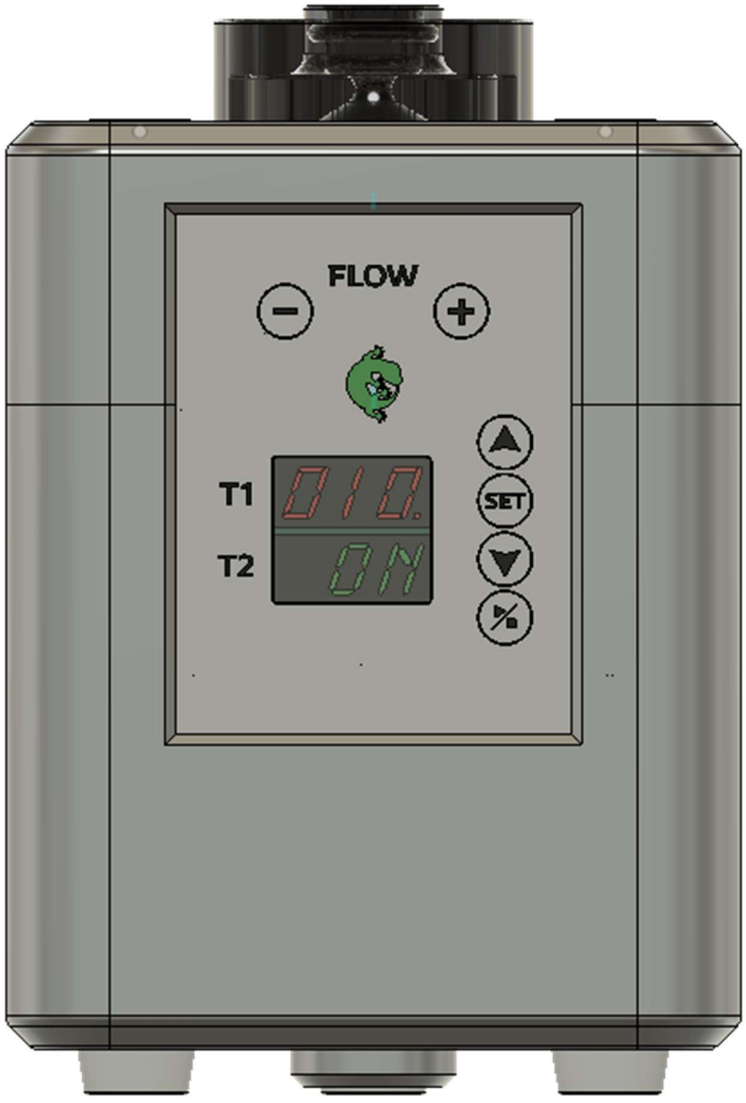
tecknosys

MS-CAN

BIOAEROSOL-CASSETTE SAMPLER

USER GUIDE



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Contents

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MS-CAN

BIOAEROSOL-CASSETTE SAMPLER

ABOUT

The MS-CAN bio-aerosol sampler is designed specifically for use with disposable cassettes, such as Zefon Air-O-Cell® or Allergenco-D, for mould and other bio-sampling applications.

The sampler incorporates a medical-grade CPAP blower with microprocessor control for precise, stable flow, adjustable between approximately 9 – 20 L/min. The TARDIS flowmeter is an optional accessory that provides low pressure-drop measurement of the sampler flowrate for quick, easy and accurate setting of the desired sample flowrate.

Power is provided from a 3350mAh lithium-ion battery pack capable of running the sampler, continuously for 15+ hours at 15 L/min with an Air-O-Cell cassette.

A programmable timer provides multiple options including timed-run, delayed-start and intermittent sampling.

The MS-CAN sampler and TARDIS flowmeter are proudly designed and manufactured, in New Zealand, by Tecknosys Ltd.

Please familiarise yourself with the contents of this User Guide before operating the MS-CAN Sampler or TARDIS Flowmeter.

ICONS USED IN THIS GUIDE


SINGLE PRESS


DOUBLE PRESS

PRESS & HOLD 2 SECONDS


CAUTIONARY NOTE

QUICK START

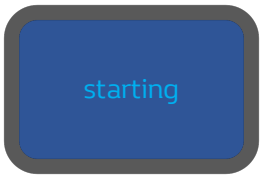
FLOW CALIBRATION

1. Install a calibration cassette into the cassette holder. A quarter twist, while pushing down, will assist with ensuring a good seal between the inlet O-ring and cassette.

2. Switch the sampler on via the power switch. The sampler will start running.

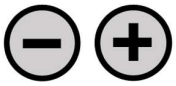
3. Switch the TARDIS flowmeter on and place on the top (inlet) of the mould cassette.

4. The TARDIS will run through a short start-up sequence, during which time "starting" will be displayed on the OLED screen. After start-up, the Tardis will begin displaying the measured flowrate.



5. The TARDIS samples flow at 10x per second and displays a moving-average flowrate so, allow a short period for the flow to stabilise before flow adjustment. Light downward pressure on the TARDIS will ensure a good seal and accurate flow measurement.

6. Adjust the sampler flowrate using the + and – buttons to achieve the desired flowrate, as displayed on the flowmeter.



7. Turn the Sampler off to store the calibrated flowrate.

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SETTING AND RUNNING A SAMPLE

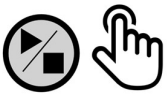
1. Fit a new sample cassette to the sampler cassette holder

2. Depress the Timer ON/OFF button then power the sampler on. The timer display and switches will illuminate but the sampler will not run (in default setup).


TIMER

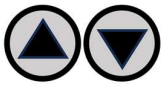

POWER

3. The T1 timer displays the programmed sample RUN-TIME (default = 10 minutes), T2 displays the DELAY-TIME before run start. If these settings are correct, then a sample run can be started by pressing the START / PAUSE / STOP button:

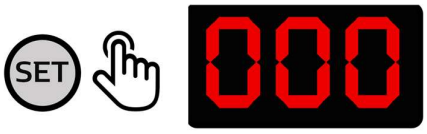


4. To adjust the RUN or DELAY times, double-press the SET button – the RUN timer will flash:

5. Adjust the T1 RUN timer, to the desired setting, using the setting adjust buttons:



6. Press the SET button to advance to the T2 DELAY timer and adjust as necessary.



7. Press SET to exit:

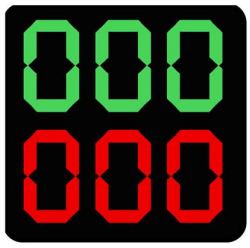
8. To begin the programmed sample run, press the START / PAUSE / STOP button:

9. The T2 DELAY Timer will count down first, then the T1 RUN Timer will activate and the sampler will run for the programmed sample time. If no delay is set, the T1 timer will start immediately.

NEXT SAMPLE, PAUSE, CONTINUE OR CLEAR A SAMPLE RUN

1. At the end of a delayed sample run the sampler will stop and both timers will reset:

2. If no delay was set, the timers will display zeroes and will need to be cleared before running another sample:

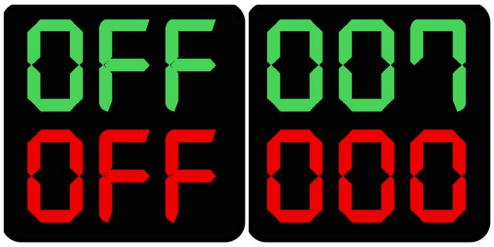


3. To clear the completed run, long press the START / PAUSE / STOP button:

4. To start a new sample, fit a new cassette and press the START / PAUSE / STOP button:

5. To pause a sample run, double press the START / PAUSE / STOP button:

6. The T1 and T2 timer displays will alternately flash between 'OFF' and the remaining time display, to indicate the sample has been paused:



7. To restart the paused sample, double click the START / PAUSE / STOP button:

8. To clear a running sample and reset the timers, long press the START / PAUSE / STOP button while the sampler is running:

9. Turn the sampler off while not in use.

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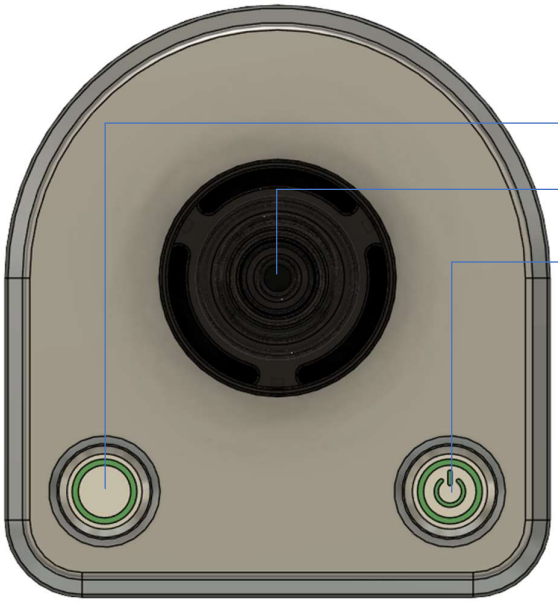
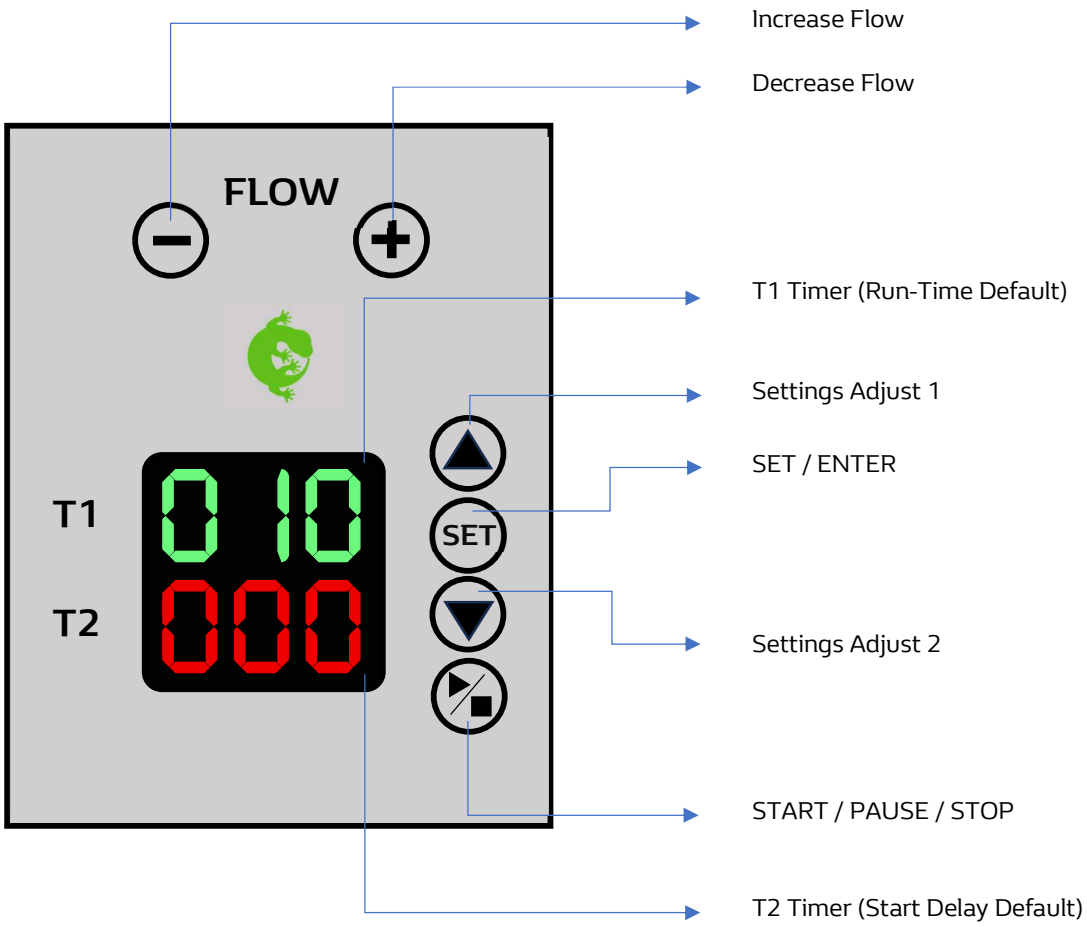
MAIN COMPONENTS



1. Timer ON/OFF Switch
2. Cassette Holder (Air Inlet)
3. Power ON/OFF Switch

5. Data Plate
6. Sampler Air Outlet
7. Charger Port
8. Tripod Mount (1/4-20 UNC)

CONTROL PANEL



PRECAUTIONS FOR USE

⚠ Take care when modifying the timer programming as this alters the default functionality of the sampler. If in doubt, return the timer settings to the default values shown in the Timer Programming Menu section of this document

⚠ Do not block the sampler air outlet

TIMER PROGRAMMING MENU

* Changing sampler start mode P2 setting from the default 'OFF' value is not recommended. When 'ON' the sampler will default to running when the timer has elapsed.

Run Cycling (use for intermittent sampling)

CHARGING

1. Connect the supplied charger to a mains power outlet, the charger status indicator will display green while powered but not connected to the sampler.

2. Connect the charger to the sampler by aligning the plug and socket red alignment marks (located at 9 o'clock on the socket) and push the plug home. The plug knurled locking collar will click when correctly mated.

3. The charger status indicator will display red while charging and then turn green when charge is complete. Charge time will depend on the state of the battery when connected.

4. To remove the charge plug, pull back on the knurled locking collar while supporting the sampler with your other hand.

⚠ The MS-CAN Sampler contains a lithium-ion battery pack which is protected by a battery management system and safety fuse; however, it is good practice not to leave the device unattended while charging.

GENERAL

CLEANING

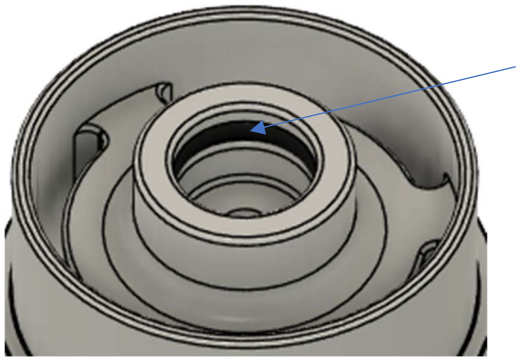
If required, lightly clean the MS-CAN sampler with a damp cloth. Do not use solvents

TRIPOD MOUNTING

The MS-CAN sampler can be mounted on any standard tripod with a ¼-20 UNC fitting.

SERVICE AND MAINTENANCE

User replaceable parts are limited to the cassette holder Oring seal:



Oring seal
(Cassette holder colour modified for clarity)

With age and use, the O-ring seal may become dry or perished. A small application of O-ring lubricant can help to prolong the life of the seal.

Should the O-ring require replacement, carefully pry the old O-ring, from the O-ring seat, taking care not to scratch or damage the seat as this may compromise the seal. A new 13x2.5mm Oring can then be fitted in place. O-rings can be purchased from Tecknosys Ltd. or any seal supplier.

For all other service requirements, please contact Tecknosys Ltd. or an authorised agent.

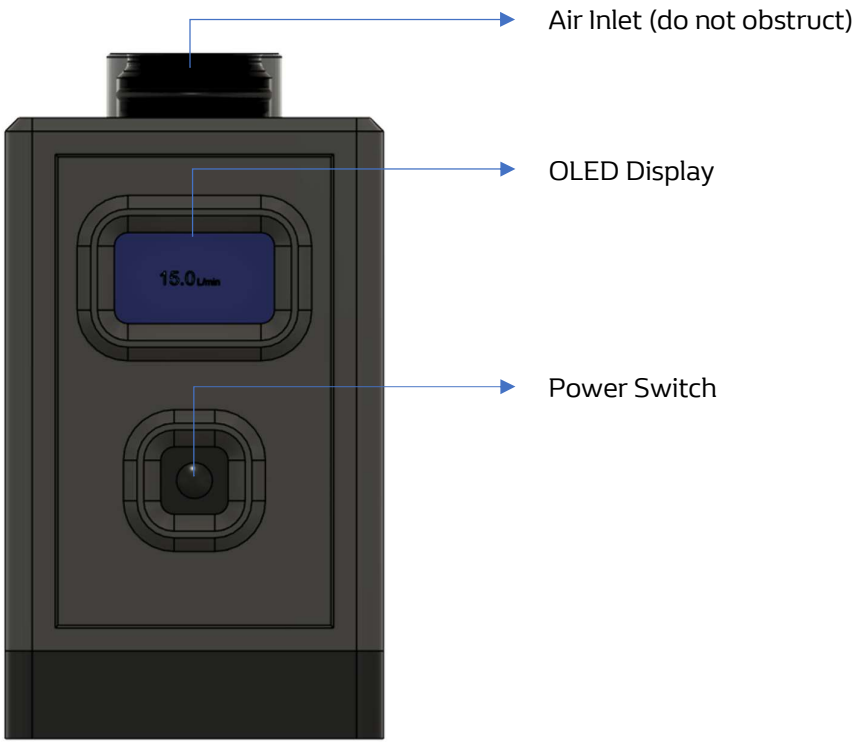
WARRANTY

Tecknosys warrants the MS-CAN Sampler and TARDIS flowmeter to be free of any defects in materials and workmanship, under normal use and service, for the warranty period of 12 months from the date of purchase.

SPECIFICATIONS AND ACCESSORIES

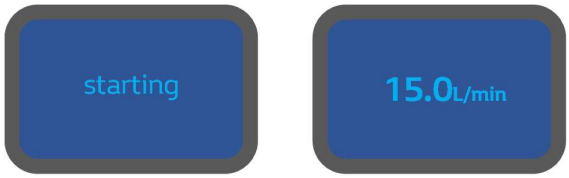
SPECIFICATIONS	
Timer	Programmable ± 20ppm (~ ± 1 sec / 14 hours)
Flowrate	~9 – 20 L/min, adjustable
Run-Time	15+ hours @ 15 L/min continuous (Air-O-Cell Cassette)
Battery	18V, 3350 mAh / 60.3 Wh, Li-ion
Charge Time	~5 Hours (typical) from full discharge state
Dimensions	110 x 115 x 155mm (without cassette)
Weight	890g
ACCESSORIES	
AOC010	CASSETTE, AIR-O-CELL, 10/BX
AOC050	CASSETTE, AIR-O-CELL, 50/BX
120515	CASSETTE, ALLERGENCO-D, 50/BX
TARDIS	MS-CAN SAMPLER FLOWMETER

TARDIS FLOWMETER

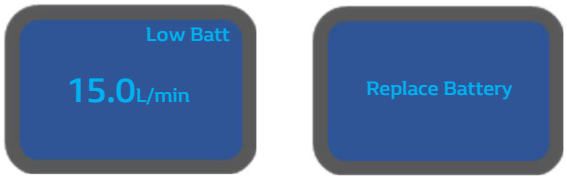


OPERATION

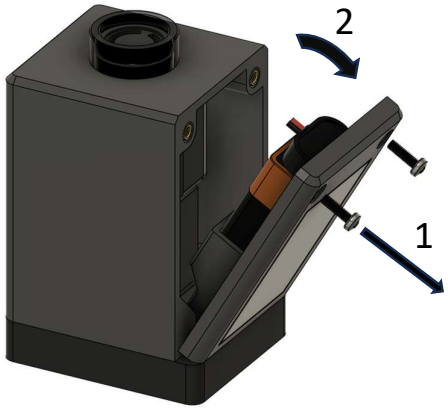
1. Switch the flowmeter on by depressing the switch on the front of the device.
2. The flowmeter will cycle through a short start-up sequence indicated by the display. After start-up the display will show the measured flowrate:



3. Follow the Quick Start Flow Calibration section of this document to calibrate the MS-CAN Sampler.
4. The OLED display will indicate a low battery and battery replacement required condition:



BATTERY REPLACEMENT



1. Turn the TARDIS off. Remove the 2 screws on the back panel of the flowmeter and tilt the panel back to access the battery.
2. Remove the battery clip and replace the battery in the compartment. Refit the battery clip.
3. To refit the back panel, align the locator tab on the base of the flowmeter with the slot on the bottom of the back panel and follow the panel removal procedure in reverse order.

MAINTENANCE

1. When required, clean the TARDIS case with a damp cloth. Do not use solvents. Do not push directly on the OLED display.
2. User serviceable / replaceable parts are limited to the battery and the 36x3mm cassette seal O-ring located in the base of the flowmeter. In normal use, replacement should not be required, and condition will be assessed during calibration. If replacement is required, O-rings can be purchased from Tecknosys Ltd. or any seal supplier.

SPECIFICATIONS

SPECIFICATIONS	
Principle	Ultrasonic
Flowrate	~0 - 40 L/min,
Pressure Drop	200Pa @ 40L/min
Accuracy	±0.10L/min (<5L/min), ±2.0% reading (≥5L/min)
Battery	9V (Alkaline recommended)
Weight	240g

Date	Revision	Details	Authoriser
04.06.2025	Rev.0	Initial Document	G. Theobald
07.06.2025	Rev.1	Add TARDIS Details	G. Theobald