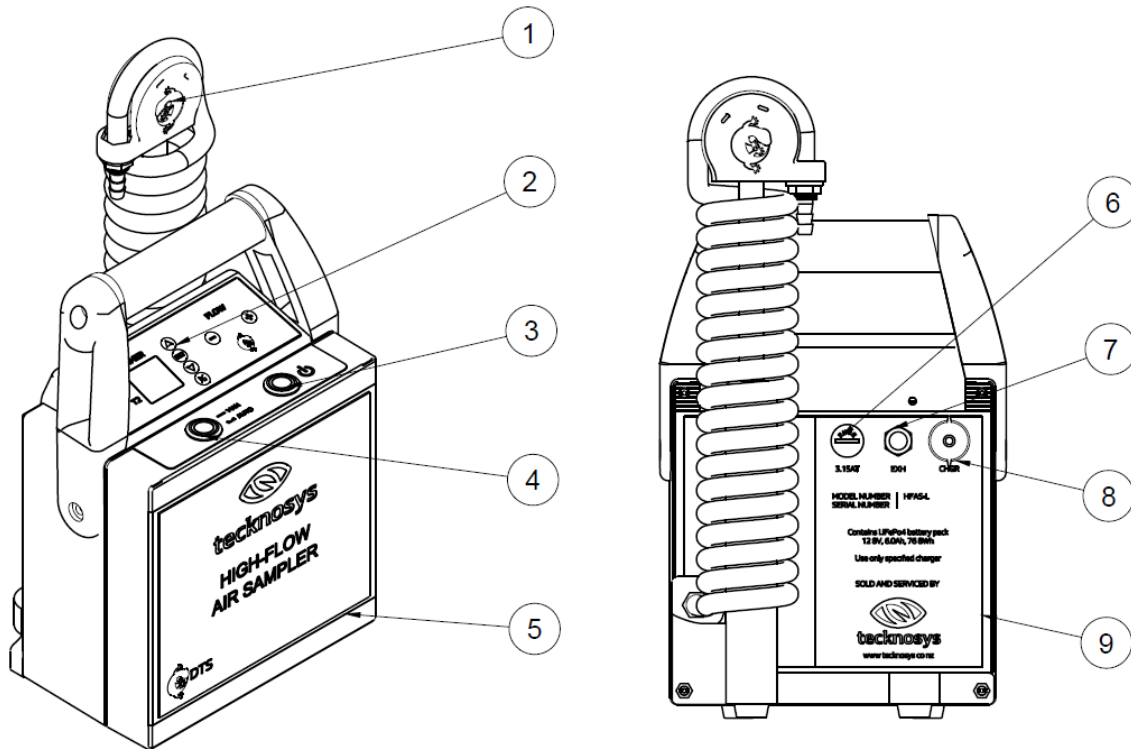


HFAS-L2 USER GUIDE

Main Pump Components



- | | | | |
|-----|--------------------|-----|--------------------------------|
| (1) | Mast Head | (6) | Safety Fuse (3.15AT) |
| (2) | Pump Control Panel | (7) | Exhaust Port (do not obstruct) |
| (3) | Power Switch | (8) | Charger Port |
| (4) | Pump Mode Switch | (9) | Data Plate |
| (5) | Pump Enclosure | | |

Flow Calibration

1. Connect sample media (e.g., asbestos cassette / mould cassette) to the inlet barb on the Masthead (1) using ¼" Tygon tubing.
2. Using another length of ¼" Tygon tubing, connect a suitable flowmeter to the fitted sample media (for mould cassettes, a suitable calibration adapter will be required).
3. Switch the pump on via the power switch (3) with the pump mode switch (4) in manual mode. Adjust the flowrate to the desired sampling rate, indicated on the flowmeter, using the pump flow adjust +/- buttons. Allow the pump to run for ~5 minutes, to stabilise to conditions, before final adjustment.
4. Make any final flowrate adjustment, if necessary, and turn the power switch off to set and retain the calibrated flow.
5. The pump can be used in manual mode by switching the power on and timing the sample with a stopwatch or other suitable timer. To use the programmable pump timer, select the mode switch to "Auto" – see Timer Programming section for timer options.

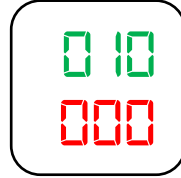


Timer

There are currently 2 versions of timer available. The 2 versions are easily distinguished by the display colours:



Version 1

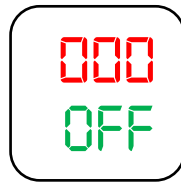


Version 2

The default setting is for a 10-minute timed run, intended for use when carrying out mould sampling with an Air-O-Cell (or similar) cassette at a flowrate of 15L/min.

Version 1 Programming:

- Default Setting – 10 Minute Timed Run:

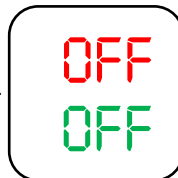


- Timer 1 – Minutes remaining
- Timer 2 – Pump Status

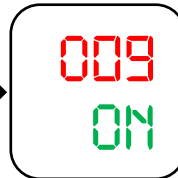
- Pause, Continue or Restart:



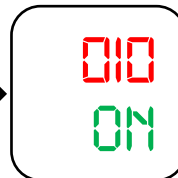
Double press to pause



Double press to continue



2 Sec press to restart



- Adjust Timed-Run Duration:

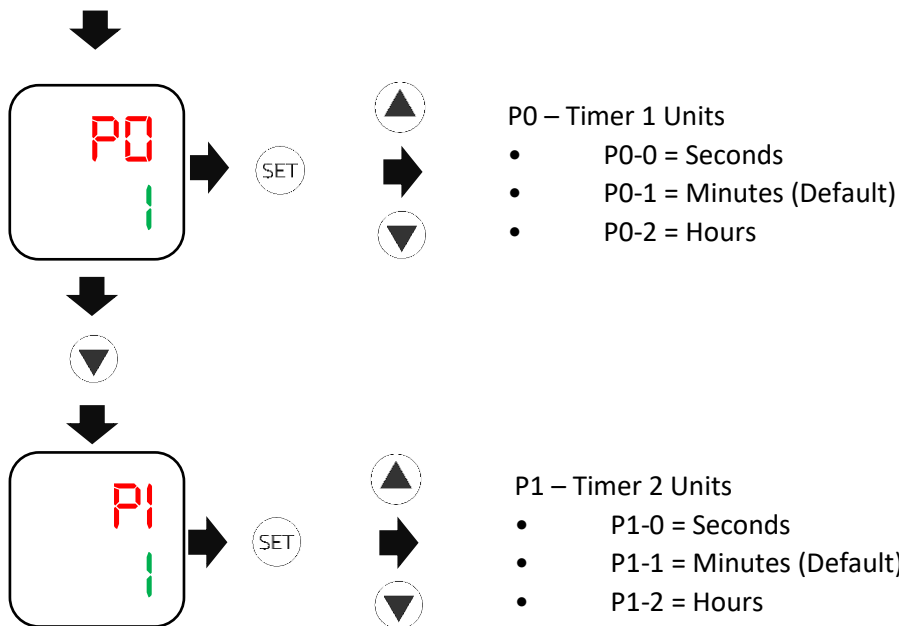


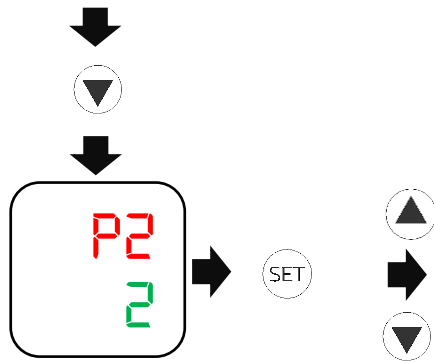
The 'Flashing' timer can be adjusted using ▲ / ▼

Timer 2 does not operate in 'Timed Run' mode so adjustment will not have an affect

- Timer Setup Menu:

SET Long Press (Note: Arrow button function is reversed in this menu.)





P2 – Timer Programme

- P2-0 = Delayed start, continuous run
- P2-1 = Timed run (Default)
- P2-2 = Delayed start, timed run
- P2-3 = Timed run, timed delay, continuous run
- P2-4 = Delayed start, timed run, continuous loop
- P2-5 = Timed run, timed delay, continuous loop




NOTE: Timers 1 and 2 will alternate between pump status and time-remaining display, according to the timer programme selected.



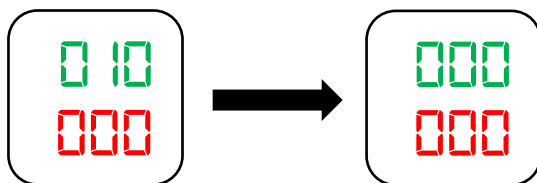
Version 2 Programming:

Basic button functionality remains the same as the version 1 timer but they setup menu options differ slightly.

The default timer setting is for a delayed start of 0 minutes with a single timed run of 10 minutes, set to start when the pump manual / auto switch is set to 'AUTO'.

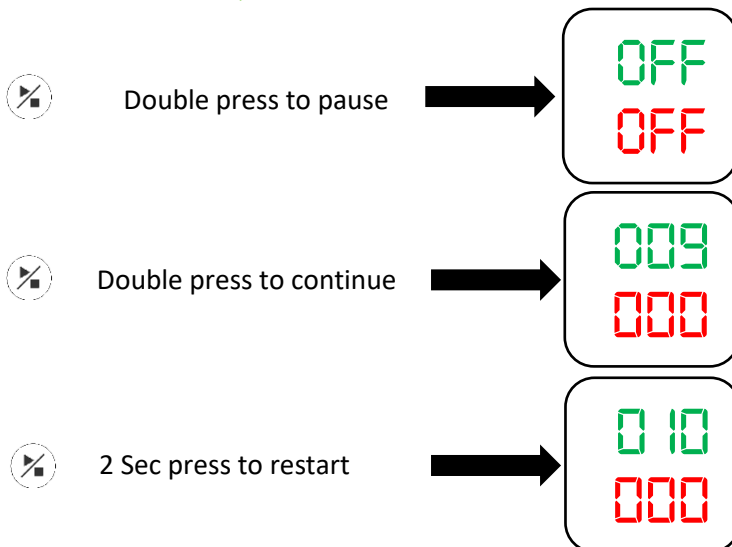
Subsequent timed runs can be initiated by pressing the timer  button for 2 seconds.

- Default Setting – 10 Minute Timed Run:





- Timer 1 – Run Minutes Remaining
- Timer 2 – Run Delay Minutes Remaining

- Pause, Continue or Restart:



- Adjust Timed-Run and Delayed-Start Durations:



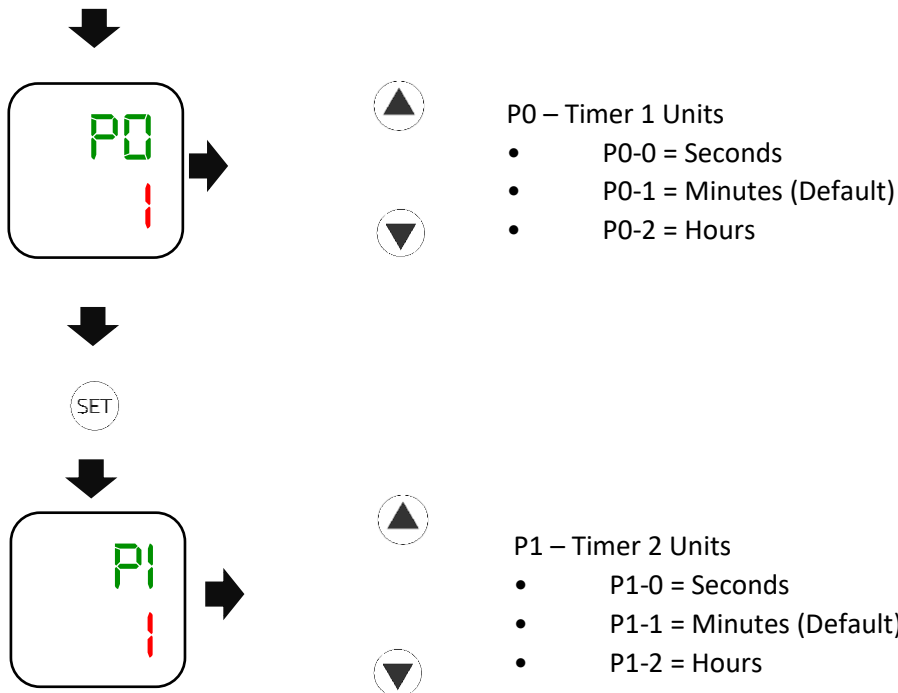
The 'Flashing' timer can be adjusted using  / 

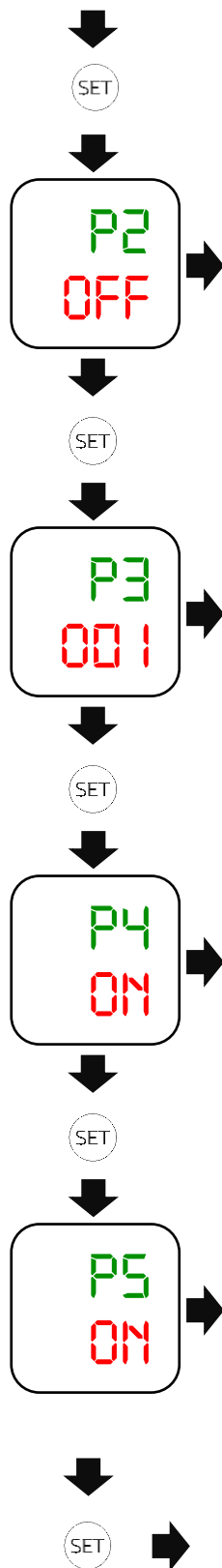


Timer 2 adjustment controls the sample run start delay time.

- Timer Setup Menu:

 Long Press (Note: Arrow button function is reversed in this menu.)





P2 – Timer Operation

- ON – Run then Delay.
- OFF – Delay then Run.



P3 – Number of Run Cycles (default = 001)

- ON – n = number of Run / Delay cycles
- OFF – Infinite Loop



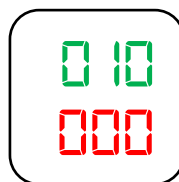
P4 – Timer Auto / Manual mode

- ON – AUTO Timer starts when powered on.
- OFF – MANUAL Timer starts when pressed



P5 – Front Menu Lock

- ON – Timer settings cannot be adjusted from front menu
- OFF – Timer settings can be adjusted from front menu.



Cleaning and Maintenance

When required, wipe the pump with a damp cloth. Do not use solvents.

Replace the inlet Tygon tubing when required.

User maintenance is limited to the replacement of the safety fuse (6).

If the pump does not power on but the charger indicates a fully charged battery, the safety fuse may have blown. A fuse may blow for several reasons and can be replaced by the user. If, however, the fuse blows again, this may indicate a fault with the pump which should be returned to Tecknosys Ltd. For repair.

The fuse is a 5x20mm 3.15A "T" type fuse and must not be replaced with any other type.

Charging

Connect the supplied charger to the charger port (8). The charger connector is keyed – the white dot indicates the connector 12 O'clock position. Secure with a quarter turn on the blue connector collar.

A red light on the charger indicates charging is in progress. A green light (when connected) indicates a fully charged battery.

The HFAS Pump contains Lithium Iron Phosphate batteries:

1. Use only the supplied charger.
2. Do not leave unattended pumps on charge.

Warranty

Tecknosys warrants the HFAS Pump 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

Timer	Total elapsed run-time (manual reset)
Flowrate	3 – 15 L/min, sample media dependent, 2 L/min with optional adapter (future release)
Run-Time	6+ hours @ 8 L/min (25mm, 0.8µm filter) 4+ hours @ 10 L/min (25mm, 0.8µm filter)
Battery	12.8V, 6.0 Ah /76.8 Wh, LiFePo4
Charge Time	~2 – 2.5 Hours (typical) from full discharge state
Dimensions	170 x 160 x 320mm (with stowed mast)
Weight	2.6 Kgs

ACCESSORIES

Asbestos Cassettes	Z008GA (50/Box)
Mould Cassettes	AOC010 (10/Box) / AOC050 (50/Box)
Air-O-Cell Cal Adapter	AOCCAL
Allergenco-D Cal Adapter	AGDCAL
¼" Tygon Tubing	ZA0064-3 (1m)
2 L/min Flow Adapter	2L-HFAS-ADAPTER
1.5 - 15 L/min Rotameter	MPB 1200B-15



Date	Revision	Details	Authoriser
09.01.2023	Rev.0	Initial Document	G. Theobald
06.07.2023	Rev.1	Add Version 2 Timer	G. Theobald
08.08.2023	Rev.1.1	Edits	G. Theobald

