



## Air LiHa™ (Air displacement pipetting arm)

Increased flexibility and greater convenience for Freedom EVO® workstations

The Air LiHa™ (Air displacement pipetting arm) uses air displacement technology to offer increased flexibility and greater convenience for a variety of applications requiring disposable tips. It can be mounted onto Freedom EVO 100, 150 or 200 platforms and freely combined with other arms, including the Liquid LiHa (Liquid displacement Liquid Handling Arm) and the MCA (MultiChannel Arm™) pipetting options, resulting in true parallel processing and increasing the productivity of the overall system.

### Features

The Air LiHa uses air displacement technology to offer a broad volume range from 0.5 to 1000 µl per channel, and is available with either four or eight individual pipetting channels. Each channel is able to move independently in the z-axis, and combined with symmetrically variable tip spacing from 9 to 38 mm, this enables sample transfers to and from most standard labware types. In addition, each channel is protected by an Inline filter, which can be easily exchanged by the user, to prevent liquid being drawn into the pipetting channel.

### Liquid handling expertise

The Air LiHa is factory tested to ensure high quality air displacement pipetting and to achieve excellent assay results. Each liquid channel offers optimized pipetting for a broad range of liquid types and volumes, with fast liquid level detection and preferential non-contact dispensing for improved pipetting performance; free dispense is possible down to 0.5 µl. A low level tip ejector allows disposable tips to be ejected within an enclosed environment, avoiding the risk of cross contamination from aerosols generated during the tip ejection process.

### Versatile disposable tips

The Air LiHa is designed to work exclusively with disposable tips, and is intended for applications where the washing of fixed tips between pipetting steps is ineffective or impractical. It is compatible with Tecan's complete range of high quality LiHa disposable tips, offering a wide selection of tip volumes, purity levels and filtered options to suit the specific needs of a given application and to ensure optimal pipetting results.



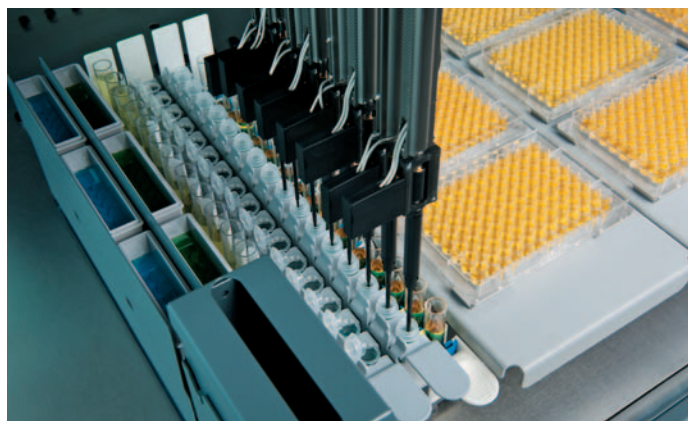
## Process security and liquid level detection

The Air LiHa features a built-in MultiSense™ functionality which supports:

- **cLLD** – capacitive liquid level detection for use with conductive liquids
- **pLLD** – pressure-based liquid level detection for use with non-conductive liquids
- **PMP™** – Pressure Monitored Pipetting for real-time quality control of all liquid transfer processes

PMP is a sophisticated process control feature which provides real-time quality control and allows detection of common sources of pipetting issues, such as clots or aspiration of air. The Air LiHa is supplied with predefined PMP liquid classes for both serum (200 and 1000 µl Tecan Standard non-filtered LiHa disposable tips) and aqueous reagents (1000 µl Tecan Standard non-filtered LiHa disposable tips) to ensure reliable pipetting performance.

To maximize system security, the pressure sensor permanently tracks the pressure in the pipetting channels, even when not being used for active pipetting steps. By detecting the pressure changes which occur if liquid comes into contact with the system's Inline filters, the system is able to stop the aspiration immediately, preventing liquid entering the air chamber of the pipetting channel in the unlikely event that the wrong disposable tip size is used.



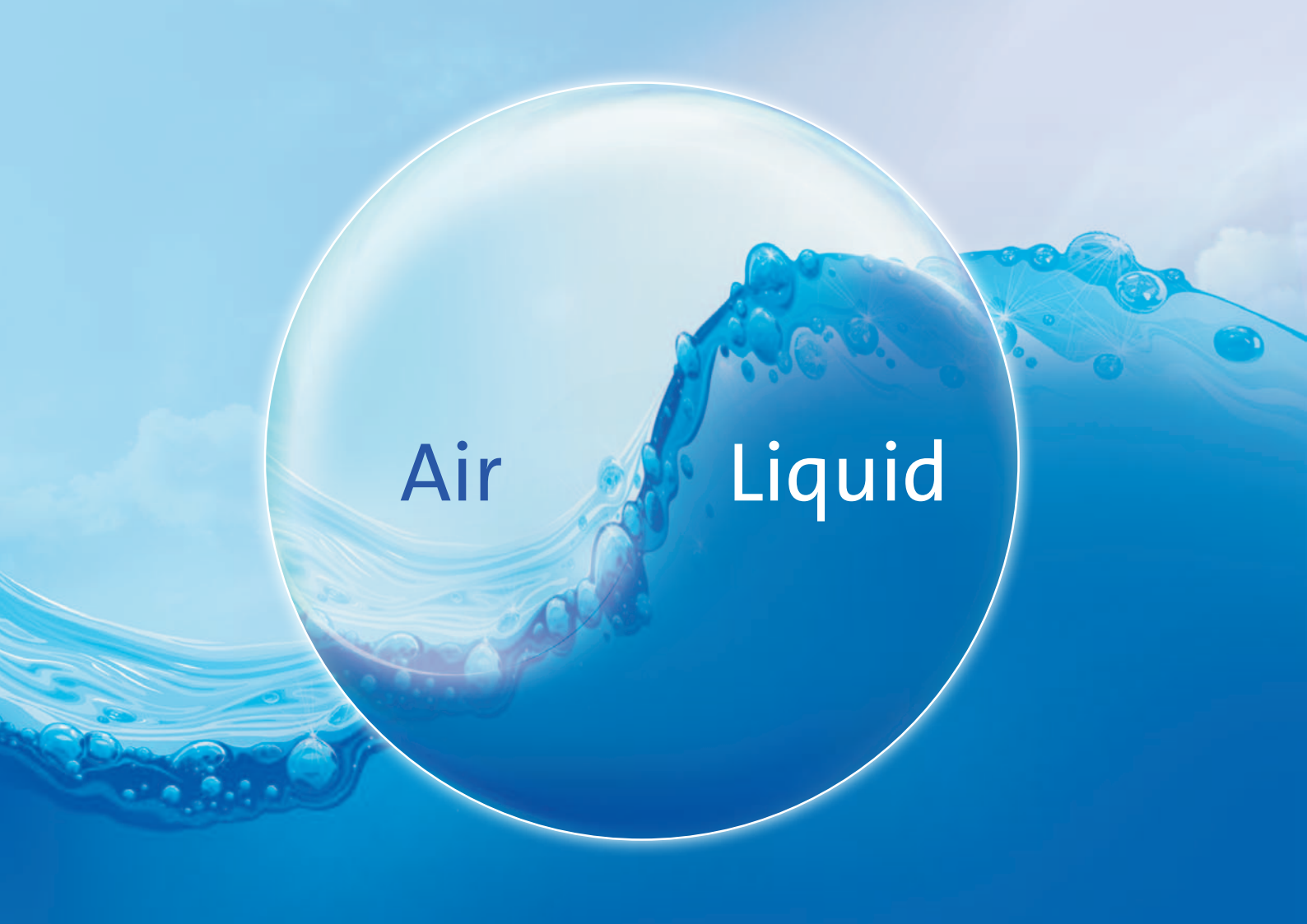
### Main benefits of Air LiHa

- Satisfies your assay demands for high pipetting quality and reliability
- Offers you greater convenience through elimination of system liquid
- Increases your system productivity and reduces laboratory costs through lower maintenance requirements
- Minimize your set-up time with Freedom EVOware®'s ease of use
- Maximize walkway time with superior error detection, reporting and recovery

## Specifications

<b>Pipetting range</b>	0.5 – 1000 µl		
<b>Free dispense</b>	down to 0.5 µl		
<b>Resolution</b>	0.1 µl		
<b>Plunger drive</b>	Brushless motor-driven piston with integrated encoder		
<b>Symmetric tip spacing</b>	9 – 38 mm		
<b>Tip compatibility</b>	10, 50, 200 and 1000 µl LiHa disposable tips (Tecan Standard, Tecan Pure or Tecan Sterile purity, with or without filters)		
<b>Liquid level detection</b>	Capacitive liquid level detection (cLLD) Pressure-based liquid level detection (pLLD)		
<b>Pipetting monitoring</b>	Pressure Monitored Pipetting (PMP)		
<b>Pipetting performance</b>	<b>Tip volume (µl)</b>	<b>Pipetting volume (µl)</b>	<b>Precision<sup>(1)</sup> (% CV)</b>
	10	0.5	< 6.0
	10	1	< 4.0
	10	10	< 1.0
	50	1	< 4.0
	50	5	< 1.0
	50	50	< 0.4
	200	10	< 1.5
	200	200	< 0.4
	1000	100	< 0.4
	1000	1000	< 0.4

<sup>(1)</sup> Data for single aspiration/dispense cycle over eight channels (12 replicates) with disposable tips (new tip for each sample) using an aqueous solution under specified conditions (available on request). Free dispense from 0.5 µl to 1000 µl.



## The best of both worlds

The Air LiHa for the Freedom EVO platform provides greater versatility than ever before. Air and liquid displacement pipetting systems each have their own advantages. Liquid displacement offers a choice of fixed or disposable tips, a large dynamic range and ultimate system cleanliness using Flow-Thru™ Technology, whereas air displacement eliminates the need for system liquids and the associated maintenance operations. By uniquely offering a choice of pipetting technologies on the same platform, or even combining both air and liquid displacement on a single workstation, Tecan provides unrivalled flexibility to suit the needs of every application and laboratory workflow.

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