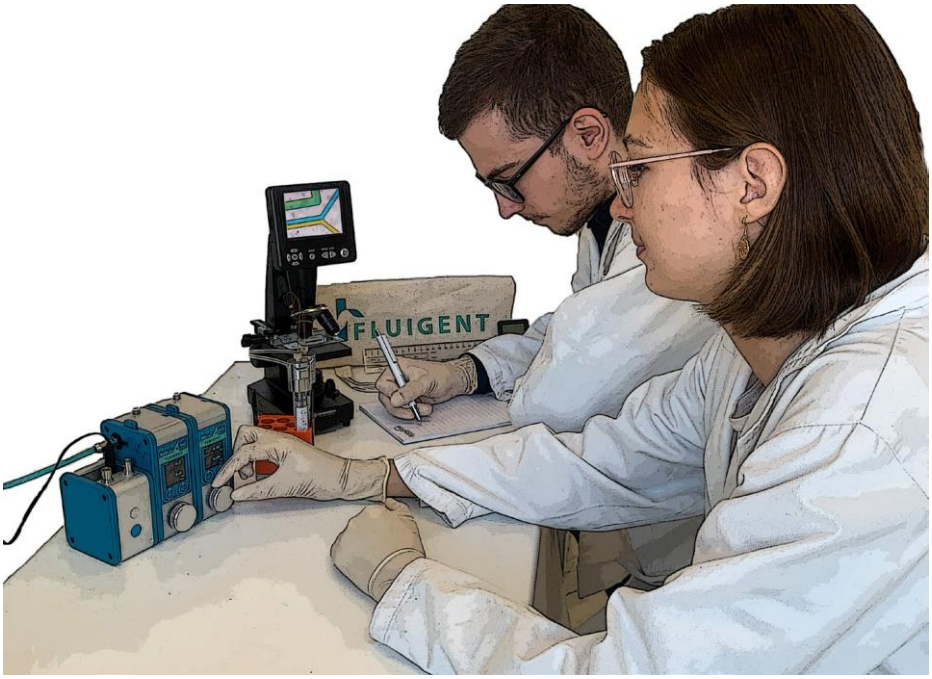
PRODUCT DATASHEET

EDUCATIONAL PACKAGES

The Fluigent Educational Packages provide a broad introduction to microfluidics and its applications by familiarizing the user with general microfluidic principles and microfluidic systems.



DESIGNED TO OFFER A PERFECT LEARNING EXPERIENCE

- **Complete microfluidic setup for starting experiments**
- **Flexible offer with 4 packages available**
- **Up to 4 hours practical work with solutions**
- **A handbook for an overview on microfluidics**

These ready-to-teach packages are specifically handy for professors and teachers.

V2 - August 2023

PRODUCT DATASHEET

DESCRIPTION

4 Educational Packages are available depending on the type of learning:

Educational Package - First level - Co-flow

A beginner package to discover microfluidics by experimenting visually a pillar concept of microfluidics: laminar flows.
Suited for: biologists, (bio)engineers, chemists, but also for high schools with scientific program.
1 hour guided experiments.

Educational Package - First level - Resistance

Master and take advantage of one powerful tool for optimizing your microfluidic experiments: the hydrodynamic resistance.
Suited for: physicists, (bio)engineer and fresh microfluidic users
1 hour guided experiments.

Educational Package - Second level - Co-flow & Resistance

Co-flow and resistance in a all in one package for a first overview on microfluidics.
Suited for: (bio)engineers, physicists, chemists
2 hours guided experiments.

Educational Package - Full course - Co-flow, Resistance, Droplets

Get the most complete overview, with experiments pushed to real-world applications: droplet generation.
Suited for: (bio)engineers, chemical engineering, physicists, biologists and researchers
4 hours guided experiments
Content from the Co Flow & Resistance Package.

Each package comes with a **specific and complete microfluidic setup**, a **theoretical handbook** on microfluidics, **practical works** with solutions, and **accessories.**

The theoretical handbook

The handbook is a **4 hours theory manual** that allows to give **an overview of microfluidic principles**, and introduces the **main concepts of microfluidics**. It is common to all Educational Packages.

Introduction to microfluidics: History - applications

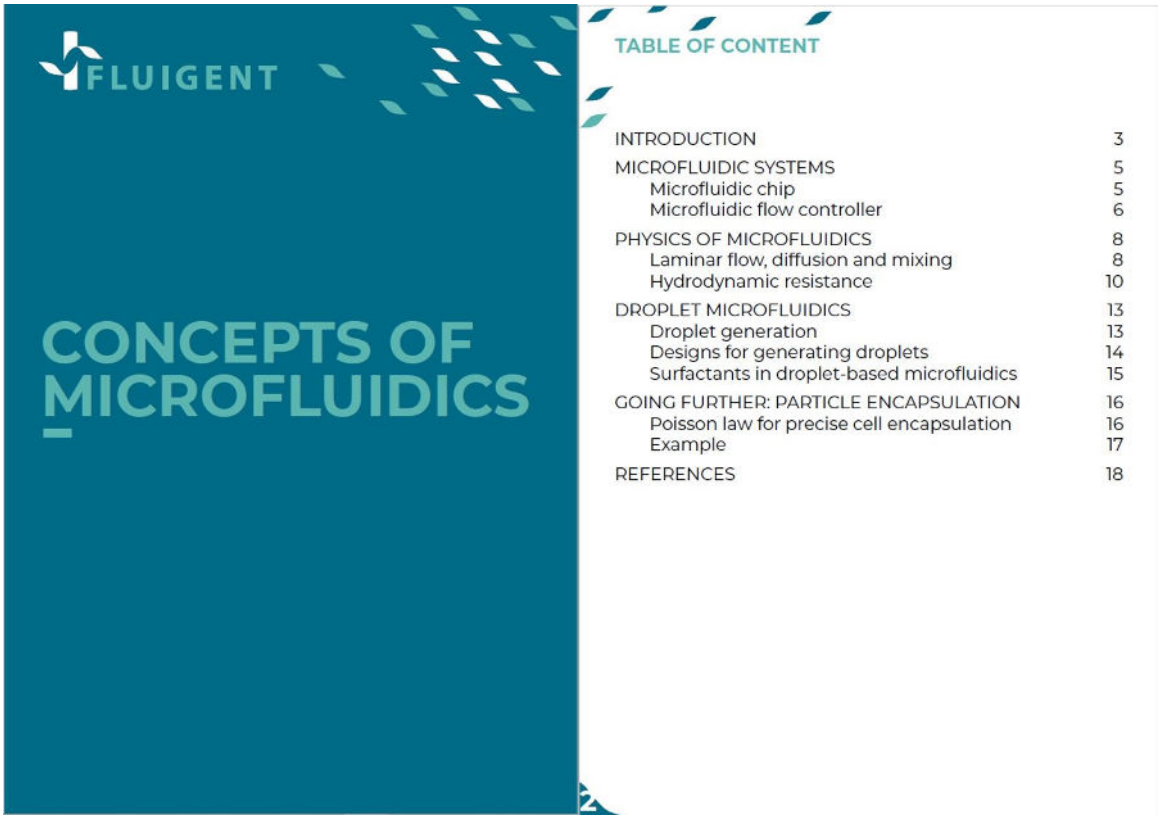
Microfluidic systems: Microfluidic chips - Flow controllers

Laminar flow: Laminar flow and diffusion definitions & theory – Mixing in microfluidics

Hydrodynamic resistance: Definition & Theory - Hydraulic-electric analogy

Droplet microfluidics: Droplet generation physics - Designs for generating droplets - Surfactants - Particle(s) encapsulation

Going further: particle encapsulation: Poisson law for precise cell encapsulation - Example



PRODUCT DATASHEET

PACKAGES CONTENT

	First level - Co-flow	First level - Resistance	Second level - Co-flow & Resistance	Full course - Co-flow, Resistance, Droplets
Theoretical Handbook	✓	✓	✓	✓
Accessories	✓	✓	✓	✓
OxyGEN control software	–	–	–	✓
Digital microscope	✓	–	✓	✓
Co-flow microfluidic setup	✓	–	✓	✓
Resistance microfluidic setup	–	✓	✓	✓
Droplet microfluidic setup	–	–	–	✓
Experiments duration	1 hour	1 hour	2 hours	4 hours

DETAILED CONTENTS

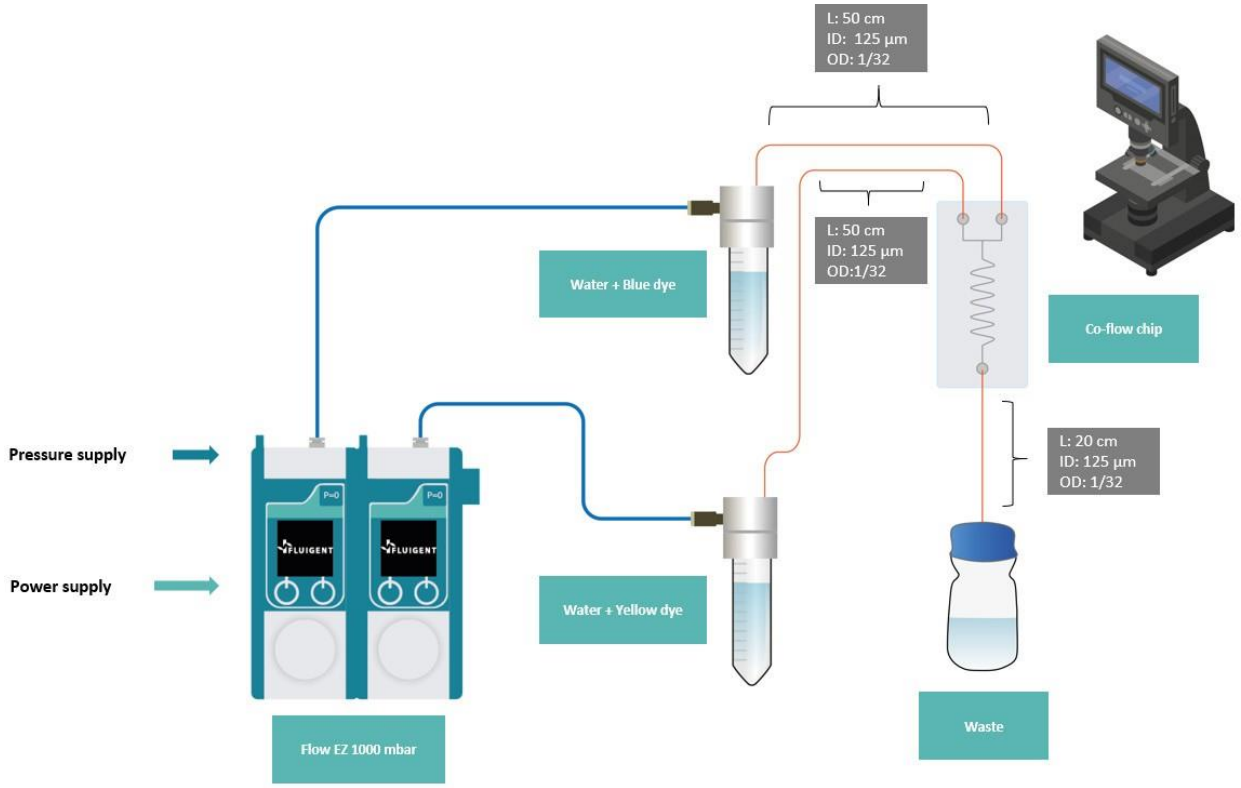
Educational Package - First level - Co-flow

ref: SEDUC-COFLOW

Content

1* LineUP SUPPLY KIT
2* Flow EZ 1000 mbar
2* PCAP 15 mL
3*Co-flow chip
1* tubing & fitting kit
1* Microscope with SD memory card
1* dye solutions
1* Printed Handbook
1*Exp. Leaflet Co-flow
1*Accessories (tubing cutter, pen, notebook, counter, ruler …)

Set-up overview



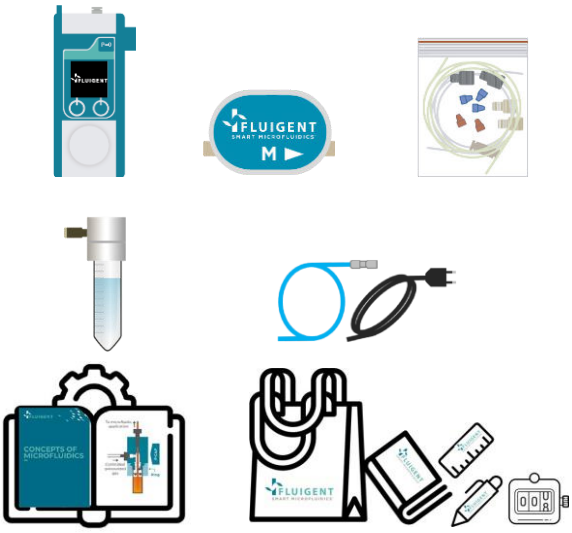
PRODUCT DATASHEET

Educational Package - First level - Resistance

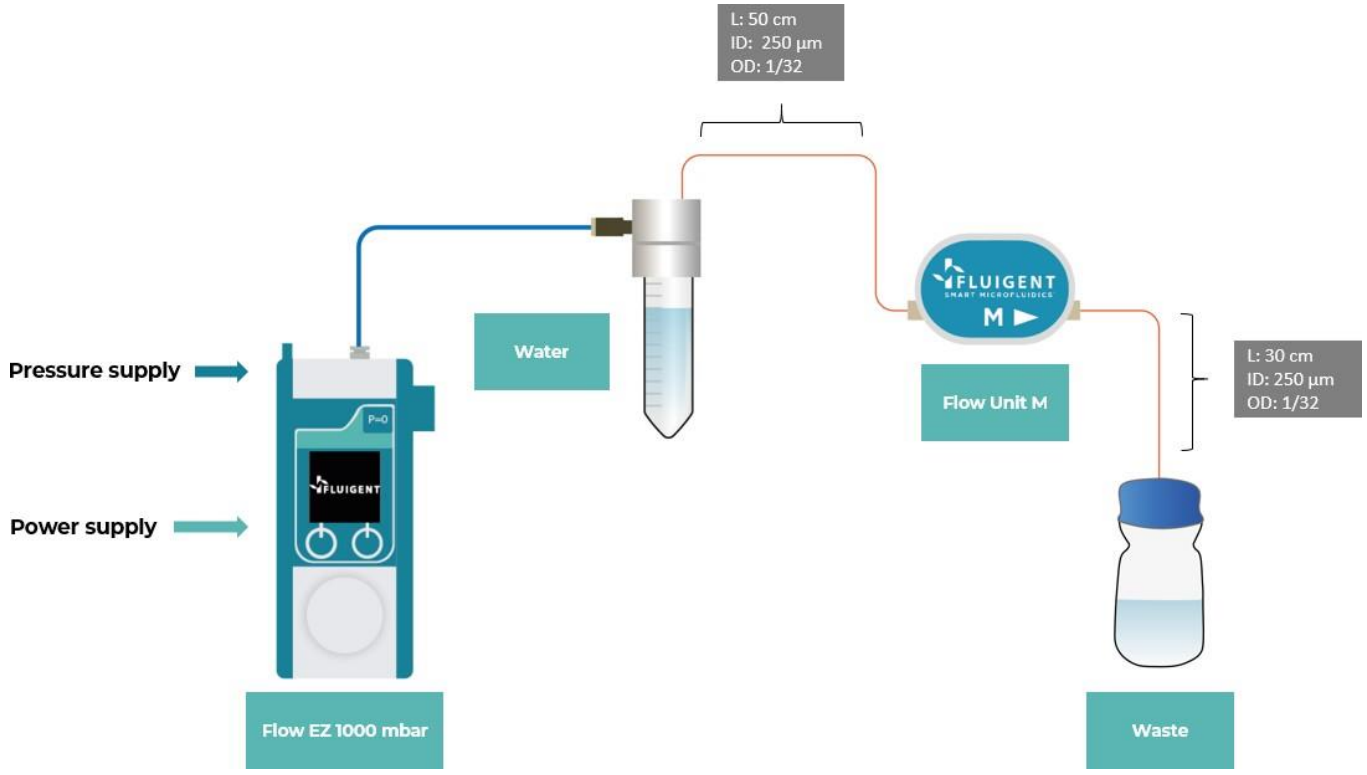
ref: SEDUC-RESIST

Content

1* LineUP SUPPLY KIT
1* Flow EZ 1000 mbar
1* PCAP 15 mL
1* Flow unit M
1* tubing & fitting kit
1* Printed handbook
1* dye solutions
1*Exp. Leaflet Resistance
1*Accessories (tubing cutter, pen, notebook, counter, ruler …)



Set-up overview



PRODUCT DATASHEET

Educational Package - Second level - Co-flow & Resistance

ref: SEDUC-RESITCOFL

Content

1* LineUP SUPPLY KIT
2* Flow EZ 1000 mbar
1* Flow unit M
2* PCAP 15 mL
3*Co-flow chip
1* tubing & fitting kit
1*Microscope with SD memory card
1*dye solution
1* Printed handbook
1*Exp. Leaflet Resistance
1*Exp. Leaflet Co-flow
1*Accessories (tubing cutter, pen, notebook, counter, ruler …)

Please refer to the Co-flow and Resistance Packages for the setup overviews.

PRODUCT DATASHEET

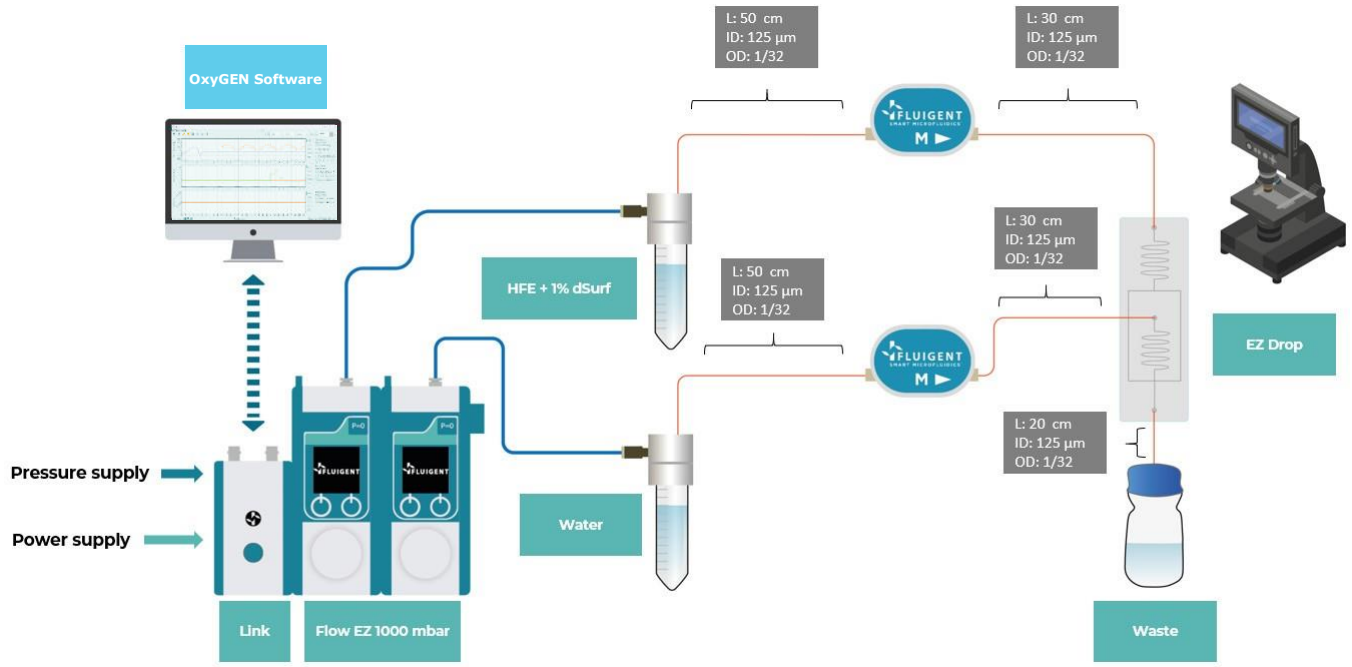
Educational Package - Full course - Co-flow, Resistance, Droplets

refW: SEDUC-DROPLET

Content

1*LineUP SUPPLY KIT
1*LINK
2*Flow EZ 1000 mbar
2*Flow unit M
2* PCAP 15 mL
3*Co-flow chip
3*EZ Drop chip
1* tubing & fitting kit
1*Microscope with SD memory card
1*dye solutions
1*dSurf 2% 12 mL
1*dOil 120 mL
1*microbeads bottle
1*OxyGEN Software – PC connection
1* Printed handbook
1*Exp. Leaflet Co-flow
1*Exp. Leaflet Resistance
1*Exp. Leaflet Droplet
Accessories (tubing cutter, pen, notebook, counter, ruler …)

Set-up overview



SETTING-UP

Please refer to the Experimental leaflet specific to each package.

TECHNICAL SPECIFICATIONS

Flow control	
Pressure controllers*	Fluigent Flow EZ™ (1000 mbar)
Flow sensors*	Fluigent FLOW UNIT M

*Please visit www.fluigent.com for additional information

Droplet production**	
Dispersed phase	Distilled water
Continuous phase	**dSurf** (2% in 3M™ Novec™ 7500 fluorinated oil)
Droplet size range	15 µm to 100 µm diameter
Generation rate (frequency)	Up to 1 200 Hz
Coefficient of variation (CV)	2%

**Please visit www.fluigent.com for additional information

Fluid mixing	
Solution 1	Blue dye
Solution 2	Yellow dye

Imaging	
Microscope	BRESSER LCD Student Microscope 8.9cm (3.5")

Software	
Live control	Fluigent OxyGEN