

PUMP-FLOW Integrator



Connected to the PRECIFLOW, MULTIFLOW, Hi-FLOW, VIT~FIT Pumps or Doser, the Integrator will allow you to record how much liquid has been pumped as a function of time. This information was not available until now.

When the pump is used for the regulation of reaction conditions such as pH, temperature or other parameters, it is important to know how much of the solution (acid or base for example) has been added to maintain a constant pH. This additional data will inform you about the kinetics of the process, its completion or even disturbances that have occurred during the process.

THE PRINCIPLES OF THE PUMP-FLOW INTEGRATOR

The heart of the pump (or LAMBDA DOSER) is a stepping motor controlled by a generator of electrical impulses. After each impulse the motor turns by one step. This movement is transmitted to the rotor, which displaces a small amount of liquid in the direction of flow by compression of the tubing. The integrator registers impulses received and transforms them into a direct voltage. The voltage can be measured or recorded by common recorders or voltmeters.

By dividing of the step frequency, the sensitivity of integration can be varied in a ratio 1 to 512. According to the diameter of the tubing and the sensitivity selected, it is possible to measure volumes between 0.1 to 4000 ml. This allows the use of the integrator on an analytical and preparative scale.

The automatic reset function returns the integrator to zero after the full-scale value has been attained. This allows the use of unlimited amounts of liquid.

The integrator has three output voltages to select from (0.1, 1 and 5 V) to allow easy connection to most common recorders.

A simple voltmeter can be used instead of a recorder (eg. to read titrant consumption during titration).

The PUMP-FLOW INTEGRATOR can be placed under the PRECIFLOW pump, to which it is connected by a cable to the 5-pole socket at the rear of the pump.

Typical examples of the applications of the PUMP-FLOW INTEGRATOR :

- control of pH during chemical reactions where the pH is controlled by the addition of acid or base (e.g. hydrolysis of esters, amides, anhydrides etc.)
- control and quantification of the metabolic activity of cells during fermentations and cell-cultures (e.g. by control of pH, rH, pO₂, pCO₂, conductivity or other parameters)
- measurement of the enzyme activity of numerous enzymes (e.g. esterases, acylases, lipases, proteases, and others using a pH stat)
- recording foam formation (automatic addition of antifoam agent)
- recording the addition of reactants during exothermic reactions where the addition of reactants are controlled by a thermostat
- recording the consumption of reactants during titration.

Technical data:	Dimensions:	4 x 10.5 x 9.5 cm (H x L x D)
	Weight:	250 g
	Output:	0.1, 1 or 5 V

Lambda
Dr.Pavel Lehky
Postfach 93
CH-3932 Visperterminen
Tel./Fax 0041 279 46 60 74

e-mail: lambda@rhone.ch
Web pages: www.rhone.ch/lambda

Lambda CZ s.r.o.
Lozibky 1
CZ-614 00 Brno
Czech Republic
Tel./Fax 00420 545 578 643
Mobile phone: 00420 603 274 677
lambda@sky.cz
www.sky.cz/lambda