

Technical Note
Flow Sensors

## Flow Sensors for Microfluidic Pumps: providing accurate and pulse-free flow rates for microfluidic applications

Flow sensors for Cellix's microfluidic pumps enable active feedback and PID control.
Ideal for microfluidic applications, where accurate and stable flow rate delivery is required resulting in superior performance.

Flow sensors are compatible with the ExiGo, UniGo and $4 U$ microfluidic pumps.


Flow sensor


Flow sensors connected to ExiGo ${ }^{\text {TM }}$ pumps

Performance and Technical Specifications:

## Technical specifications

| Operation | Plug and play connection to the ExiGo, UniGo and 4U microfluidic <br> pumps |
| :--- | :--- |
| Features | Allows monitoring of pump flow rate and active PID (proportional, <br> integral, differential) feedback of pump flow rate |


| Sensor: | $1.5 \mu \mathrm{~L}$ | $7 \mu \mathrm{~L}$ | $80 \mu \mathrm{~L}$ | 1 mL |
| :---: | :---: | :---: | :---: | :---: |
| Measured flow ranges | $\pm 1,500 \mathrm{~nL} / \mathrm{min}$ <br> ( $\equiv 1.5 \mu \mathrm{~L} / \mathrm{min}$ ) | $\pm 7,000 \mathrm{~nL} / \mathrm{min}$ <br> ( $\equiv 7 \mu \mathrm{~L} / \mathrm{min}$ ) | $\pm 80,000 \mathrm{~nL} / \mathrm{min}$ <br> ( $\equiv 80 \mu \mathrm{~L} / \mathrm{min}$ ) | $\begin{aligned} & \pm 1 \mathrm{~mL} / \mathrm{min} \\ & (\equiv 1,000 \mu \mathrm{~L} / \mathrm{min}) \end{aligned}$ |
| Accuracy (whichever value is higher) | $0.5 \%$ full scale <br> ( $7.5 \mathrm{~nL} / \mathrm{min}$ ) <br> $10 \%$ of measured value | 0.3\% full scale <br> ( $21 \mathrm{~nL} / \mathrm{min}$ ) <br> $5 \%$ of measured value | $0.15 \%$ full scale <br> ( $120 \mathrm{~nL} / \mathrm{min}$ ) <br> $5 \%$ of measured value | $0.2 \%$ full scale <br> ( $2 \mu \mathrm{~L} / \mathrm{min}$ ) <br> $5 \%$ of measured value |
| Dead volume | $1.0 \mu \mathrm{~L}$ | $1.5 \mu \mathrm{~L}$ | $5.0 \mu \mathrm{~L}$ | 25.0 L |
| Operating pressure | 200 bar | 100 bar | 15 bar | 15 bar |
| Code | FS-1.5 | FS-7.0 | FS-80.0 | FS-1000 |
| Dimensions | 60 mm (L) $\times 51 \mathrm{~mm}(\mathrm{~W}) \times 21 \mathrm{~mm}$ (H) |  |  |  |
| Weight | $<0.1 \mathrm{~kg}$ |  |  |  |
| Power | Via cable to ExiGo, UniGo or 4 U microfluidic pump |  |  |  |

