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Pulseless supply of cell cultures

Control of micro annular gear pumps via graphical user interface enables fast results

Cell cultures are widely used, for example for the development and testing of drugs, production of tissue culture or for research purposes. The required stability and growth of the cell culture depends on the continuous supply of a precise amount of culture medium, that contains essential nutrients, growth factors, hormones, and gases.

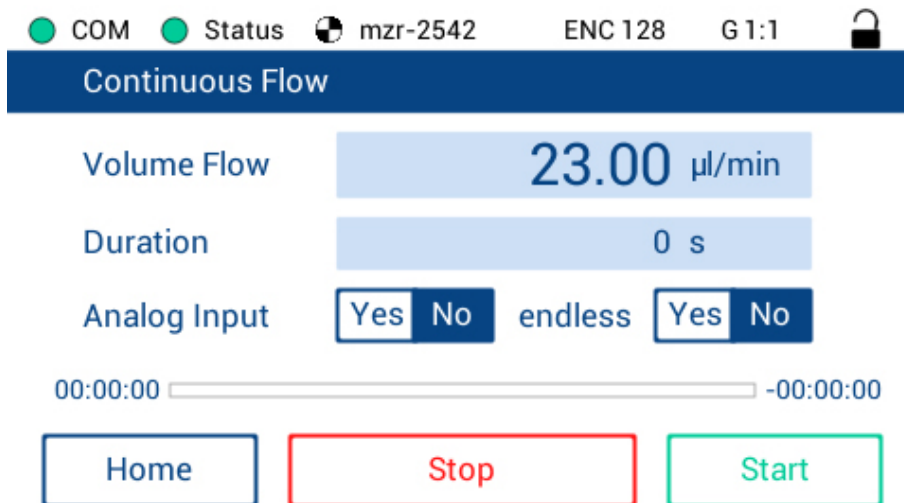
Typical requirements are volume flows up to 10 µl/min. Furthermore, the sensitive cells must be protected against shear stress due to pulsation. Pumps of the low pressure series from HNP Mikrosysteme (HNPM) can guarantee the required low shear stress and continuous flow of the culture medium. In addition to the present control of these micro annular gear pumps (mzr pumps) via laptop, PC or potentiometer, the mzr-Touch Control with a graphical user interface has recently become available. The intuitive user interface allows quick parameter adjustments. Especially in test situations, the volume flow can be changed within a few seconds. Due to also selectable discrete dosage, the cell culture can be exposed to different levels of shear stress, if required as research condition.

The easy operation of the dosing system with the help of the intuitive, graphical user interface of the mzr-Touch Control enables fast and precise results in laboratory and production. Most pump sizes and series of HNPM can be controlled via mzr-Touch Control, so the user can specify dosing volumes from 0.25 µl and delivery ranges from 1 µl/min to 288 ml/min for the combinable dosing pumps. The mzr-Touch Control will be presented at Analytica in hall B1, booth 409.

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HNP Mikrosysteme

HNP Mikrosysteme GmbH, located in Germany, develops, manufactures and markets pumps worldwide which deliver small amounts of liquids fast and accurately. Beside several applications at plant engineering, chemical processing and pharmaceutical processing, mzr-pumps are used in the field of life science and analytical instrumentation.



Graphical user interface of mzr-Touch Control for the discrete dosage
Picture: *hnpm_mzr-Touch Control_dosing_en.jpg*



mzr-Touch Control as a new possibility to control micro annular gear pumps
Picture: *hnpm_mzr-Touch Control.jpg*

We kindly invite you to visit us at international fairs:

- **Analytica**, Munich, **H 1, 409**
- **HMI**, Hanover, **H 27, D46**
- **Achema**, Frankfurt, **H 8, J95** and **H 4.2, E38**