

Drug Application

PDES – Pressurized Application



MVCS – Iontophoresis



Type of applicable substances

All liquid/viscous substances

Charged substances

Principle of operation

Ejection of substances by pressure

Ejection of charged substances by electric pulses

Functions/Settings

Eject pressure: applied pressure pulse

Eject current: applied current pulse

Holding pressure: low pressure to counter-balance capillary forces

Retain current: small current to counter-balance capillary forces.

Balance current: counterbalances the applied charge to avoid DC shifts.

Min. Time resolution

Standard internal valve: > 100 ms

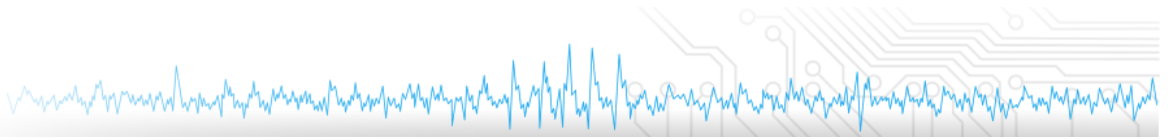
Slow system: 10 ms

Standard external valve: > 20 ms

Fast system (with headstages and capacity compensation): 100 μ s

Fast external valve: ~ 1 ms





Which model to choose?

PDES

Analog or digital pressure gauge?

Digital one comes with analog output for pressure logging with data acquisition



What ejection times are needed?

The pulse duration is determined by the **speed of the valves** and also by the **length of the tubing** between the valve and the application pipette.

The closer the valve is to the pipette, the less air has to be compressed which allows faster switching times

Standard internal valve: > 100 ms

Standard external valve: > 20 ms

Fast external valve: ~ 1 ms



Do you need the HOLD function?

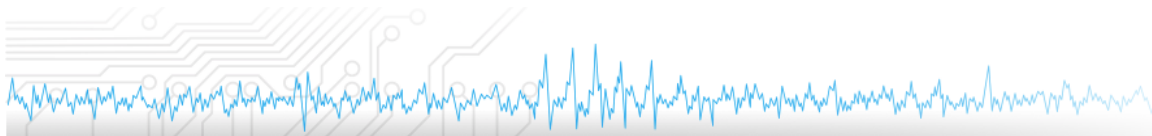
A very low holding pressure to counter-balance capillary forces which pull bath medium into the application pipette.



How many application channels are needed?

19" systems are available with 1 or 2 channels. In the modular version up to 4 channels fit into one EPMS-07 housing. Other special versions are available on request.





MVCS

Which model to choose?

What maximum output voltage is required?



45 V: for e.g., 450 nA into 100 MΩ electrodes

150 V: for e.g., 1.5 μA into 100 MΩ electrodes

How fast shall the system be?

The standard system is intended for coarse applications such as bulk loading.

For shorter and locally more precise applications, the fast system comes with headstages which contain a fast capacity compensation circuit, allowing a spatial resolution of $\sim 1 \mu\text{m}^3$



Standard system: > 100 ms

Fast system: > 10 μs

Do you need the BALANCE channel?

The BALANCE channel applies a counter current with inverted polarity. This avoids DC shifts in parallel recordings (patch clamp or extracellular)



How many application channels are needed?

19" systems are available with 1 or 2 channels, plus the BALANCE channel. In the modular version up to 4 channels fit into one EPMS-07 housing.



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