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

Holding pressure: low pressure to counter-balance capillary forces

Eject current: applied current pulse

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

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

Min. Time resolution

Standard valve: 20 ms and longer

MicroJECT: 2 ms and longer

Slow system: 10 ms

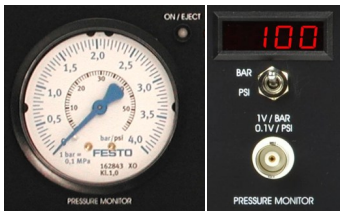
Fast system (with headstages and capacity compensation): 100 µs

Which model to choose?

PDES

Analog or digital pressure gauge?

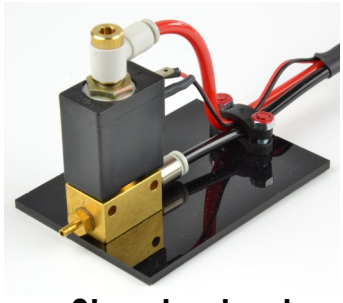
Digital one comes with analog output for pressure logging with data acquisition



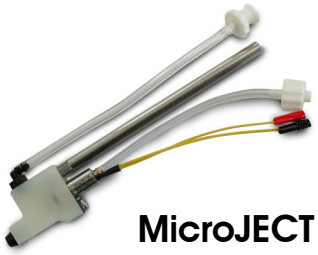
What ejection times are needed?

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 valve



MicroJECT

Standard valve: 20 ms and longer

MicroJECT: 2 ms and longer

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 ~1 μm^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.

High quality npi products - made in Germany

Universal Amplifiers
patch clamp, single cell
electroporation, transfection
intra- and extracellular voltammetry

Bridge Amplifiers
most accurate current clamp
amplifiers

Extracellular Amplifiers
LFP, EEG, EMG,
single- or multi-channel

Temperature Controllers
analog control for
low-noise operation

Iontophoretic Substance Application:
fast and precise application of
charged substances

Customized Devices and Prototypes
easy customization due to
inhouse production

Voltammetric Amplifiers
voltametry, amperometry,
FCV

Miniature Headstages
record in freely moving animals
iintra- and extracellular
voltammetry

Amplifiers for Oocytes
fast and accurate clamp with
large currents

Single Electrode Amplifiers
fastest discontinuous current
and voltage clamp

Isolated Stimulators
current and/or voltage
battery or power supply

Filters and Signal Conditioners
high- and lowpass
Bessel filters

Pressurized Substance Application
precise application of
non-polar agents

Fiber Photometry Systems
plug-and-play addition to any
e-phys rig

Contact:

General:
npi electronic GmbH
Phone: +49-7141-9730230
Fax: +49-7141-9730240
sales@npielectronic.com
www.npielectronic.com

North America:
ALA Scientific Instruments
Phone: +1-631-393-6401
Fax: +1-631-393-6407
sales@alascience.com
www.alascience.com