

# PDES Series

## Versatile Pressure Ejection Units



Pressure ejection is a convenient method for applying both ionic and non-ionic solutions from micropipettes. First, it can apply to almost all solutions. Second, the amount of the ejected solution can be monitored by viewing the tip of the micropipette under a microscope. npi PDES units are designed for pressure ejection of drugs in physiological and pharmacological studies. PDES systems can be equipped with pressure outputs ( $P_{max} = 4 \text{ bar (58 psi)}$  or  $2 \text{ bar (29 psi)}$ ) for drug application with micropipettes. Analog or digital timers and a remote control unit facilitate the use of these instruments. They are available with one or two application channels. One channel instruments can also be equipped with a retain channel. All PDES units can be operated with internal valves as well as with external valves to reduce the minimal application time to less than one millisecond. Each channel consists of a precision pressure regulator, pressure display, electronically controlled valves, control electronics, and a regulated power supply. Ejection of drugs can be activated manually or through a TTL input. The operational status is indicated by a red / green LED. Each system is equipped with a monitor BNC connector that reflects the opening time of the pressure valve. In digital systems the pressure is monitored at a BNC connector as well ( $1 \text{ V / bar}$  or  $0.1 \text{ V / psi}$ ).

### Features:

- ⇒ one or two channel versions (one channel versions can be upgraded)
- ⇒ analog or digital timer
- ⇒ analog or digital manometers
- ⇒ precise pressure regulators
- ⇒ internal or external valves
- ⇒ extremely precise with *microJECT* valve and digital timer
- ⇒ optional remote control
- ⇒ with status / eject time indicator
- ⇒ also available as module for the EPMS-07 system



*microJECT*



## Technical Data

Source gas:

air, nitrogen, helium etc.,  
no aggressive, combustible or explosive gases,  
filtered by a 5  $\mu$ m filter element

Pressure range:

input pressure: max. 5 bar (72 psi)  
pressure control range: 0-2 bar (0-29 psi) or  
0-4 bar (0-58 psi)  
residual air pressure: 10 mbar (0.145 psi)  
to 100 mbar (1.45 psi)

Input and output couplings:

quick connect type

Tubes:

input: 6 mm OD  
output: 4 mm OD

Mode selection:

three position toggle switch, (TIMER, CONT., EXT.)

Minimum valve switch time:

standard valve: approx. 10 ms  
dependent on the tubing length  
with *microJECT*: <1 ms

Digital timer:

100  $\mu$ s - 10 s set by five digit switch (0000.0 - 9999.9 ms)

Analog timer:

0.001 - 0.1 s, 0.01 - 1 s, 0.1 - 10 s and 1 - 100 s  
linear control, range set by toggle switch time base selector  
(0.01 s, 0.1 s, 1 s, 10 s)

Pulse input (BNC connector):

for external operation:  
TTL (LO = 0-2.5 V, HI = 3-5 V), input impedance: 10 k

Timing output (BNC connector):

TTL (LO = 0-2.5 V, HI = 3-5 V), output impedance: 249  $\Omega$

Pressure output (BNC connector):

pressure monitor., sensitivity: 1 V / bar or 0.1 V / psi,  
output impedance: 249  $\Omega$

Remote control (option):

toggle switch and status LED for each channel, size: 2.5 x 4 x 10 cm

Dimensions:

19" rackmount cabinet, 19" (483 mm), 10" (250 mm), 3.5" (88 mm)

The various configurations of PDES systems are reflected in the part number

### PDES-0X-Y(E)-LA-Z

where

X = number of channels (1 or 2)

Y = type of timer (T=analog; D=digital)

E = configuration with external valve(s), blank = configuration with internal valve(s)

LA = configuration with digital display(s), blank = configuration with analog display(s)

Z = maximum pressure (2 bar [29 psi] or 4 bar [58 psi])

External valve options:

- PDES-0X-BOX (for "slow" valves [ca. 10 ms])

where:

X = number of channels (1 or 2)

- PDES-EHM (for "fast" *microJECT* valves [<1 ms])

for one channel

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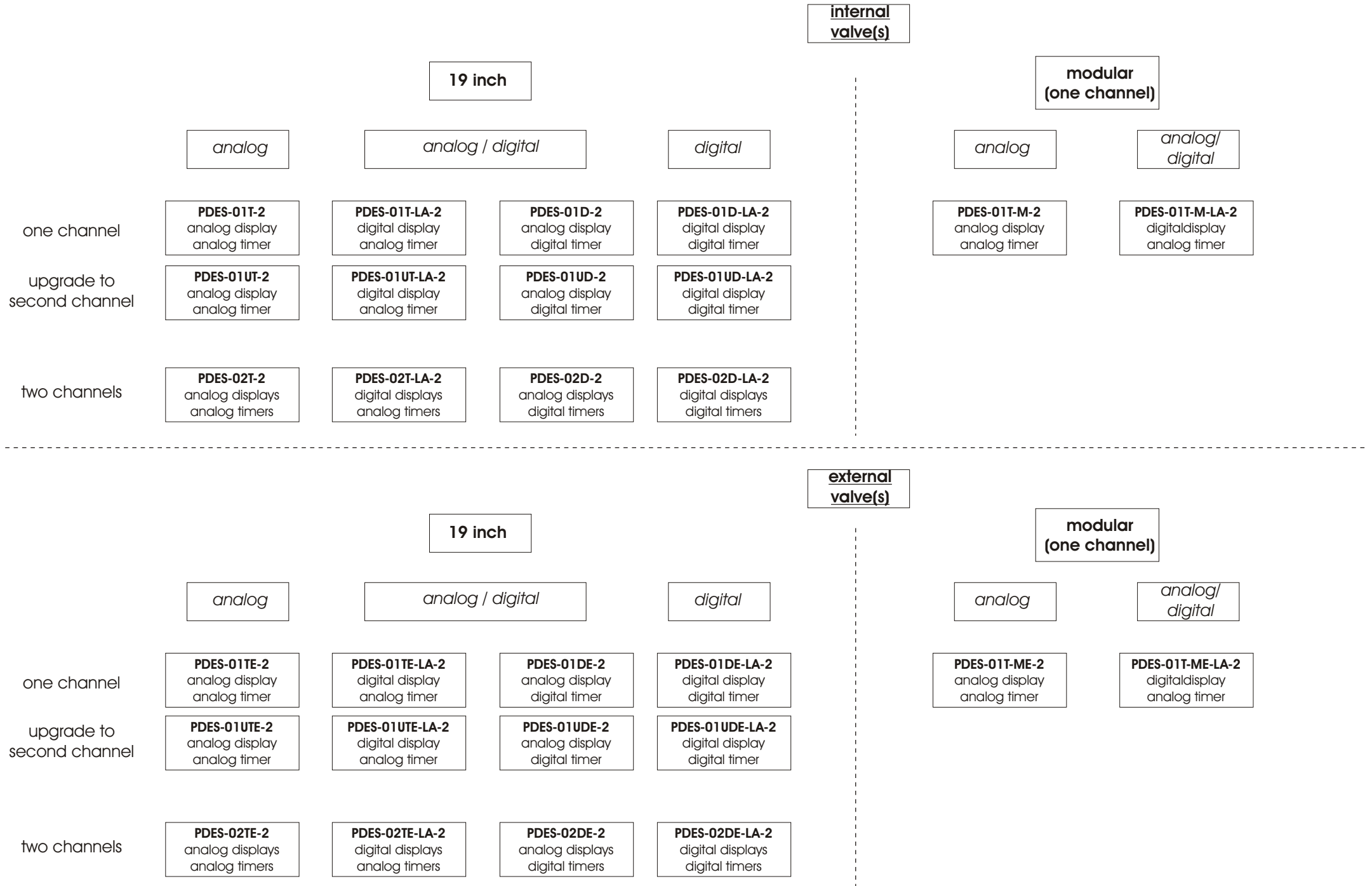
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Electronic Instruments  
for the Life Sciences

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## Examples

PDES-01D-2, one channel, analog manometer, digital timer



PDES-01T-2, one channel with retain, analog manometer, analog timer



PDES-01D-LA-2, one channel, digital manometer, digital timer



PDES-02D-LA-2, two channels, digital manometer, digital timer



Slow external valve

