



PRODUCT INFORMATION USSING-AMPLIFIER UPG3



The UPG3 is an inexpensive and efficient amplifier for the operation of Ussing chambers. It can be switched between voltage clamp and current clamp modes. The electronic components are housed in a compact slide-in cassette and can therefore be used in a standard rack. A suitable bench housing is also available with integrated power supply that allows the operation of two (or four modules).

The connection to the Ussing chamber is via an adapter cable. One end of the cable has 1 mm (diameter) connectors for the adaption of the electrodes.

BRIEF DESCRIPTION:

- processor controlled operation using four buttons and an LCD display
- LED indicators for active pulse and overload
- built-in clock pulse generator
- all parameters are stored and recalled for the next measurement
- current and voltage clamp mode, switchable
- adjustable offset for I and U output
- BNC connectors for I and U output, trigger input (galvanic isolated), trigger output
- Power supply +8V/100mA, $\pm 18V/50mA$
- 19'' slide-in cassette, TE21, 3HE

For the operation of the amplifier UPG3 a housing and a power supply are required. Our bench housing with integrated power supply can operate up to two modules and is therefore suitable for the operation of one or two Ussing chambers.

A bench housing for up to four modules is under development.



**TECHNICAL DATA PLUG-IN UNIT UPG3**

Common	
power requirement	8 V / 0.1 A, ± 18 V / 0.05 A
housing	19" plug-in unit TE21, 3HE
connector	DIN 41612, type D 32pol. A-C
dimensions (B x H x T)	106.3 x 128.4 x 169 mm
ambient temperature limit	10 - 40 °C
weight	1 kg

Pulse Generator	
pulse duration	100 ms to 2000 ms (step size: 50 ms)
pause duration	1000 ms to 10000 ms (step size: 500 ms)
trigger pulse output	+5V, TTL
trigger pulse length	see pulse duration
trigger pulse input	+5V, TTL, max. 15V

Amplifier	
input sensivity	max. ± 10 V
input impedance	> 10 M Ω
voltage clamp range	clamp amplification = 1: ± 1000 mV = 10: ± 100 mV = 100: ± 10 mV
clamp voltage output	max. ± 10 V
clamp vottage output, scale	clamp amplification = 1: 10 mV / mV = 10: 100 mV / mV = 100: 1000 mV / mV
output offset range U / I	max. ± 1000 mV
current range	10, 100, 1000 μ A
output current	max. ± 10 V
output current, scale	current range = 10 μ A: 1000 mV / μ A = 100 μ A: 100 mV / μ A = 1000 μ A: 10 mV / μ A

TECHNICAL DATA BENCH HOUSING TE42

Common	
power supply	230 V, 50 Hz, 30 VA
secondary voltage (not stabilized)	8 V / max. 1.2 A, ± 18 V / max. 0.3 A
protective system	class 1 (protection earthing)
dimensions (B x H x T)	236 x 133 x 256 mm
ambient temperature limit	10 - 40 °C
weight	2.8 kg

Ussing-Amplifier UPG3, plug-in unit TE21 item no : 2051
Bench Housing TE42 with power unit item no : 2060
Adapter Cable UPG3-Ussing Chamber, 0.5 m item no : 2070