

The **Voltain™ EP-1** System provides precise alignment of cells for optimal fusion conditions; critically shaped fusion pulses for optimally fusing adjacent cells, or for merging intracytoplasmic cells; and pulses for nuclear reprogramming of somatic cells, or activation of ICSI embryos.

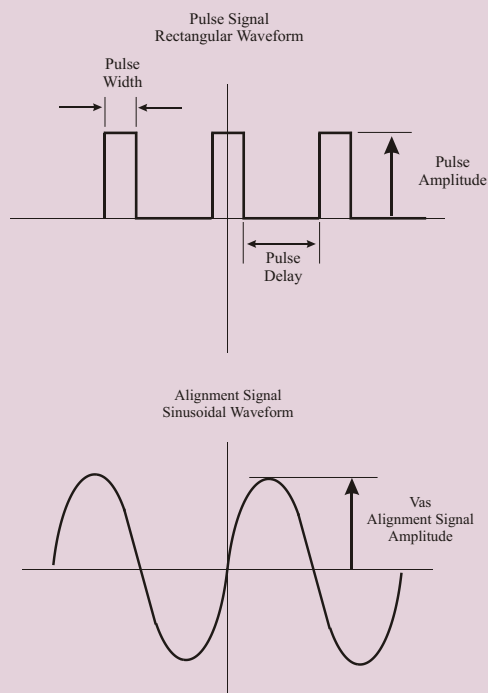
The EP-1 uses Electric Fields to align and then fuse and/or activate cells.

ALIGNMENT is achieved using an Alignment field to control Dielectrophoresis and hence movement of the cells. The Alignment field is generated by a high fidelity sine wave with minimal distortion to 1.2 MHz, thereby minimising membrane stress to cells during alignment.

FUSION or **ACTIVATION** is achieved using a Fusion field to stimulate Dielectric breakdown of the cell membranes. The Fusion field is generated by a sequence of one or more rectangular pulses which have very fast rise/fall times and minimal droop or overshoot, for more reproducible actions, and uniform transfer.

Once values for each parameter are set all values remain valid whenever the unit is powered up.

The **Voltain™ EP-1** is suitable for a range of applications, including: nuclear transfer in mice, cattle, or sheep, involving cells which may be very similar or very different in size, or using different cell types such as embryonic stem cells or somatic cells; fusion between B-Lymphocytes and myeloma cells to produce hybridomas; and plant hybridisation through somatic/gametic plant protoplast fusion. It may also be used for electroporation to transfect DNA material, or to introduce otherwise non-permeable macromolecules into target cells.



Features

- ACCURATE & STABLE
- HIGH FIDELITY
- WIDE ADJUSTMENT RANGE
- SIMPLE & EASY TO USE CONTROLS
- HIGHLY RECTANGULAR PULSE
- HIGH STABILITY
- SAFE & RELIABLE
- HANDS FREE OPERATION

Specifications

Alignment Field:

Waveform	Sinusoidal, Distortion < 1%
Alignment Amplitude (peak)	0 to 25 (+/-0.1)Volt (0-50Vpp, 0-17.7Vrms)
Step size	Continuous
Alignment Frequency	10 to 1200 (+ 1) Khz
Step Size	Continuous
Alignment Field Current Limit	75mA (approx)
Post Pulse Alignment (Adjustable)	0-10 sec

Fusion Field:

Pulse Shape	Square
Rise/Fall time	0.05ms (approx)
Droop	<2% for 150W load
Pulse Amplitude	0 to 500 (+/-1) Volt
Step size	Continuous
Pulse Current Limit	1A (approx)
Pulse Duration	1 to 999us
Step Size	1us
Tolerance	+0.15us (approx)
Repeat Pulse Delay	10 ms to 9.99s
Step Size	10ms
Tolerance	+2ms max
Repeat Pulse Count	0 to 99

Voltain™ EP-1

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