Plant Electroporator

Genome Editor *for Plants* GEBPL

The long-awaited Genome Editor series dedicated for plants

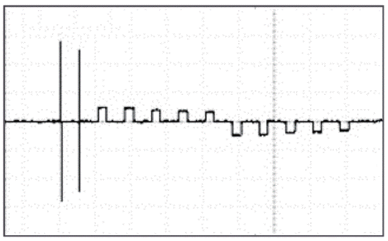
Proprietary developed fall pulse realizes highly efficient introduction of molecules

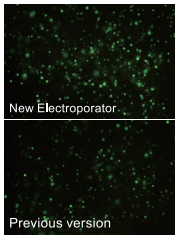
Enabling DNA-free genome editing in current generation

Features

Equipped with fall pulses

Gene transfer into plant cells by the electroporation method is widely known. However, there are few reports of gene transfer using conventional devices.
The fall pulse is a unique and novel waveform, which is characterized by a change from positive to negative polarity. It is expected to improve the transfection efficiency compared to the waveform of conventional devices.



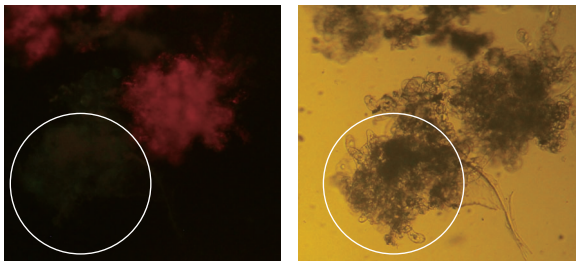


Allows setting of conditions for each plant species

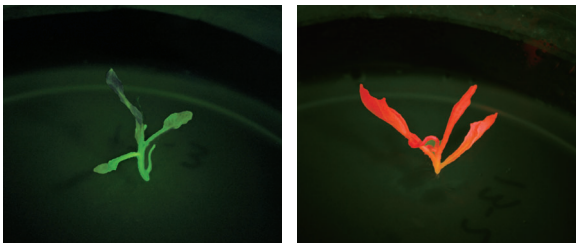
A large touch-panel display is adopted so that the user can intuitively set the voltage and application time. Polarity can be alternately switched between positive and negative polarity in ALT mode, positive to negative polarity in +/- mode, and positive polarity only in + mode. For user convenience, different conditions for different plant species can be saved as a protocol. The history automatically saves the output voltage and current values for each pulse and can be output to USB storages as a standard feature.

Enables DNA-free genome editing

Fall pulse has the ability to improve cell viability while maintaining transfection efficiency. By using CRISPR/Cas9 (RNP) it becomes easier to obtain the desired phenotypes compared to conventional devices.



Red autofluorescence that is characteristic of plant cells is lost by genome editing using gRNA targeting the phytoene disaturase (PDS) gene, encoding a carotenoid biosynthetic enzyme.



■ GFP ■ Control

dsDNA can be inserted into any region of the gene by electroporating simultaneously with CRISPR/Cas9 (RNP).

* Product specifications are subject to change without notice

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Features

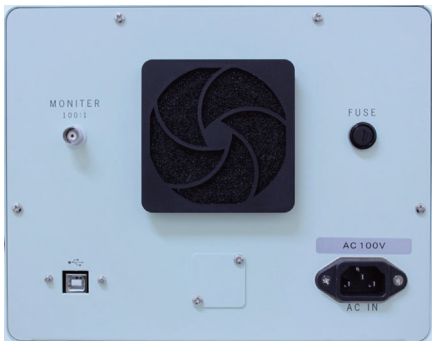
Compact design taking up less space

Following the design of CUY21EDIT, the width and the height have been reduced by ~40% and ~20%, respectively. It has a compact size and shape that easily fits not only on a laboratory bench but also on a wagon.

Large-sized touch panel adopted

GEBPL is equipped with a 5.7-inch touch panel for inputting set values. The waveform pattern is displayed as a graphic, so you can intuitively understand the input pattern. In addition, the numeric keypad screen popping up when entering the set value makes the data entry tasks easy.

GEBPL・FRONT



GEBPL・REAR

Specifications

Pulse	Poration pulse (Pp, PLPp)		Driving pulse (Pd)
Pulse waveform	Decaying pulse (ON/OFF)		Decaying or Square pulse
Voltage range	Pp: 1-400V in increments of 1V PLPp: 1-350V in increments of 1V		1-350V for decaying pulse in increments of 1V 1-200V for square pulse in increments of 1V
Pulse width	0.01-99.9 msec		0.05-1000 msec
Pulse interval	0.05-99.9 msec (Pp, *1) 50-1000 msec (PLPp, OFF) 0.0-1000 msec (PLPp, OFF2)		0.05-1000 msec (*2)
Number of pulses	Pp: 1, PLPp: 1-10		1 - 1000
Pulse mode of Pd	Pd(+): same polarity as Pp, Pd(-): reverse polarity of Pp (available only when Pp in on) Pd(+/-): set numbers of Pd(+) and then set numbers of Pd(-) Pd(ALT): set numbers of alternate pairs of a Pd(+) and a Pd(-)		
Range of decay rate in Pd	Decaying pulse mode: available by selecting condenser capacity (3.3-1416.3μF) Square pulse mode: 0-99% in increments of 1%		
Measurement range of resistance	up to 39kΩ		
Measurement range of applied voltage	-512V - +512V in increments of 1V		
Measurement range of impressed current	Decaying pulse: -10.23 - +10.24A in increments of 0.01A Square pulse: -1023 - +1024mA in increments of 1mA		
Number of memorable programs	>20000	History of applied pulses	Last 100 patterns (sequentially overwrote)
Power unit	Single-phase 100V; 400VA; 50/60Hz		
Dimensions/Weight	240mm(W)-380mm(D without projections) -190mm(H without rubber foot), 9kg		

*1: interval between poration pulses and driving pulses
*2: Minimum pulse interval will be 0.01msec when decaying pulse is selected.

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