



power supplies

introduction	57
omniPAC power supplies	59
consort power supplies and power adaptors	62

Electrophoresis Power Supplies

Whether you require a power supply for routine horizontal DNA agarose gel electrophoresis or techniques as technically demanding as SSCP analysis within a large format vertical, or first dimension IEF using IPG strips, Cleaver Scientific can meet your requirements with its comprehensive range of omniPAC power supplies. Each power supply benefits from a small footprint area and compact design, while explanatory self-prompting menus facilitate easy set up. Furthermore, these power supplies adhere to IEC 61010 – one of the world's most stringent electrical safety standards. Use the menu below to choose the power supply most suitable for your electrophoresis application.

Power Supply Selection Menu

Technique & Apparatus Format	Gel or Tube Size*, Quantity (w x L x T)	Typical Running Conditions†						Run Time	omniPAC (Consort) Power Supply
		At start			End				
		Power (w)	Voltage (v)	Current (mA)	Power (w)	Voltage (v)	Current (mA)		
SDS-PAGE, second-dimension 2-D									
VS30DSYS	280 x 200 x 1mm, 2 gels	-	100	35 (Constant)	-	350	35 (Constant)	5½-6h Max	CS-500V
VS20WAVE	160 x 175 x 1mm, 2-4 gels	-	100	35 (Constant)	-	350	35 (Constant)	5h Max	CS-500V
VS20DSYS	160 x 175 x 1mm, 2 gels	-	100	35 (Constant)	-	350	35 (Constant)	5h Max	CS-500V
VS10WDSYS	160 x 85 x 1mm, 2 gels	-	200 (Constant)	200	-	200 (Constant)	80	60-80 min	CS-300V or nanoPAC-300
CVS10DSYS or CVS10TETRAD	80 x 85 x 1mm, 2-4 gels	-	200 (Constant)	120-240	-	200 (Constant)	120	40-60 min	CS-300V or nanoPAC-300
IEF, first-dimension 2-D									
Flat-bed e.g. CSL-IEF	3 x 240 x 1mm, max. 12 strips	-	300 (Constant)	3	-	3000 (Constant)	<1	16h Max	(EV232 or EV233)
Maxi Tube Gel – e.g. VS20DC, VS20C2DS, WAVEC2DS	180 x 1/1.5mm tubes, 10 max.	-	800 (Constant)	4	-	800 (Constant)	<1	8h Max	(EV215)
Mini-Wide Tube Gel -e.g. VS10WDC, VS10WC2DS	80 x 1/1.5mm tubes	-	700-800 (Constant)	1	-	700-800 (Constant)	<1	4h Max	(EV215)
Mini Tube Gel -e.g. VS10DC, CVS10C2DS	80 x 1/1.5mm tubes	-	700-800 (Constant)	1	-	700-800 (Constant)	<1	4h Max	(EV215)
DNA Restriction Analysis (Horizontal)									
MSMINIDUO	70 x 100 x 5mm, max.	-	80 (Constant)	40	-	80 (Constant)	45	45-60 min	nanoPAC-300 or CS-300V
MSMIDIDUO	100 x 100 x 5mm, max.	-	90 (Constant)	50	-	95 (Constant)	55	45-60 min	nanoPAC-300 or CS-300V
FMMS10a	100 x 80 x 5mm	-	50 (Constant)	25	-	50 (Constant)	35	30-60 min	nanoPAC-300 or CS-300V
MSCHOICETRIO	150 x 150 x 5mm, max.	-	90-150 (Constant)	50-80	-	90-150 (Constant)	55-90	60-90 min	nanoPAC-300 or CS-300V
MSMAXIDUO	200 x 200 x 5mm, max.	-	100-150 (Constant)	50-80	-	100-150 (Constant)	55-90	60-90 min	nanoPAC-300 or CS-300V
High Throughput DNA Electrophoresis (Horizontal)									
MSMIDI96	100 x 120 x 5mm	-	70 (Constant)	40	-	80 (Constant)	45	30-45 min	nanoPAC-300 or CS-300V
MSMIDI96ST	100 x 240 x 5mm	-	90 (Constant)	50	-	95 (Constant)	55	60-90 min	nanoPAC-300 or CS-300V
MULTISUB4	80 x 240 x 5mm, max.	-	90 (Constant)	50	-	95 (Constant)	55	60-90 min	nanoPAC-300 or CS-300V
MSCHOICEST	150 x 250 x 5mm, max.	-	90-150 (Constant)	50-80	-	90-150 (Constant)	55-90	60-90 min	nanoPAC-300 or CS-300V
MSSCREENTRIO	260 x 320 x 5mm, max.	-	100-150 (Constant)	50-80	-	100-150 (Constant)	55-90	90-120 min	nanoPAC-300 or CS-300V
Comet Assay, SCGE (Horizontal)									
CSL-COM10 CSL-COM20 CSL-COM40 CSL-COM80	25 x 75mm, 10, 20, 40 & 80 slides respectively	-	25V (Constant)	300 max	-	25V (Constant)	300 max.	1 h	nanoPAC-300 or CS-300V
Clinical Electrophoresis (Horizontal)									
CSL-CELLAS	25 x 140mm–170 x 170mm, Cellasgel strips max. 250µM thickness	-	200V (Constant)	7.5	-	200V (Constant)	7.5 max.	30-90 min	nanoPAC-300 or CS-300V
DNA Sequencing, SSCP Analysis & Microsatellite Mapping (Large Format Vertical)									
CSQ20	160 x 500 x 0.35mm	45-55 (Constant)	1500 max.	20-30	45-55 (Constant)	1500	20-30	4-5h	(EV232 or EV233)
CSQ33	290 x 410 x 0.35mm	45-55 (Constant)	1500 max.	20-30	45-55 (Constant)	1500	20-30	4-5h	(EV232 or EV233)
Mutation Detection									
VS20-DGGE	160 x 175 x 1mm, 2 gels	-	120-150 (Constant)	-	-	120-150 (Constant)	-	2-2.5h	CS-500V

Technique & Apparatus Format	Gel or Tube Size*, Quantity (w x l x t)	Typical Running Conditions†						Run Time	omniPAC (Consort) Power Supply
		At start			End				
		Power (w)	Voltage (v)	Current (mA)	Power (w)	Voltage (v)	Current (mA)		
Western Blotting									
omniBLOT Mini – e.g. SB10	80 x 85 x 1mm, 4 gels	-	100 (Constant)	250	-	100 (Constant)	400	1-2h	CS-300V or CS-3AMP
Modular System - e.g. CVS10CBS	80 x 85 x 1mm, 4 gels	-	100 (Constant)	250/550 Wire/Plate Electrodes	-	100 (Constant)	400/1500 Wire/Plate Electrodes	2h / ½-1h Wire/Plate Electrodes	CS-300V/ CS-3AMP Wire/Plate Electrode
Standalone – e.g. EBM10	80 x 85 x 1mm, 4 gels	-	100 (Constant)	250	-	100 (Constant)	400	1-2h	CS-300V or CS-3AMP
omniBLOT Mini Wide – e.g. SB10W	160 x 85 x 1mm, 3 gels	-	100 (Constant)	250	-	100 (Constant)	250	1-2h	CS-300V, CS-500V or CS-3AMP
Modular System - e.g. VS10WCBS	160 x 85 x 1mm, 3 gels	-	100 (Constant)	250	-	100 (Constant)	250	1-2h	CS-300V, CS-500V or CS-3AMP
WAVE Maxi – e.g. WAVECBS	160 x 175 x 1mm, 4 gels	-	50/100 Wire/Plate Electrodes (Constant)	150-250 /1000-1600 Wire/Plate Electrodes	-	50/100 Wire/Plate Electrodes (Constant)	150-250/ 1000-1600	5-20h/1-5h	CS-3AMP
omniBLOT Maxi – e.g. SB20	160 x 175 x 1mm, 3 gels	-	50 (Constant)	250	-	50 (Constant)	250	5-20h max.	CS-3AMP
Modular System - e.g. VS20CBS	160 x 175 x 1mm, 4 gels	-	50 (Constant)	250	-	50 (Constant)	250	5-20h max.	CS-3AMP
Semi-Dry Blotting (Protein / Nucleic Acids)									
SD10 Mini	100 x 100 x 2/5mm, 1 gel	-	75 (Constant)	550	-	75 (Constant)	550	15-30 min	CS-3AMP
SD20 Maxi	200 x 200 x 2/5mm, 1gel; 4x Mini Gels	-	75 (Constant)	1200	-	75 (Constant)	1200	15-30 min	CS-3AMP
SD33 Maxi-Plus	330 x 450 x 2/5mm, 1gel; 14x Mini Gels; 3x Maxi Gels	-	75 (Constant)	2000	-	75 (Constant)	2000	15-30 min	CS-3AMP
SD50 Maxi-Long	200 x 500 x 2/5mm, 1 gel; 10x Mini Gels; 2x Maxi Gels	-	75 (Constant)	2000	-	75 (Constant)	2000	15-30 min	CS-3AMP

* Sizes shown are those most commonly used in the corresponding apparatus. See product manuals for running conditions for additional sizes.

†(Constant) the parameter set as a constant value on the power supply. Typical conditions are to serve as guidelines only, and will vary according to the buffer and overall quality of the sample and reagents.

‡ Uses 2xTAE.

omniPAC Power Supply Specifications

	MINI nanoPAC-300	MIDI CS-300V	MAXI CS-500V	MAXI CS-3AMP
Output range (programmable)	10-300V	2-300V	5-500V	5-300V
Volts	10-300V	2-300V	5-500V	5-300V
Current	10-400mA	1-700mA	1-800mA	10-3000mA
Power	60W max.	150W	300W	300W
Resolution	1V / 1mA	1V / 1mA	1V / 1mA / 1W	1V / 1mA / 1W
Type of output	Constant voltage or constant current	Constant voltage or constant current	Constant voltage, constant current or constant power	Constant voltage, constant current or constant power
Automatic crossover	-	✓	✓	✓
Timer	1-999 min. with alarm; Continuous	1-999 min. with alarm; Continuous	Constant mode: 1-9999 min. with alarm; continuous. Programmable mode: 1-999 min. with alarm; continuous.	Constant mode: 1-9999 min. with alarm; continuous. Programmable mode: 1-999 min. with alarm; continuous.
Pause/resume function	-	✓	✓	✓
Display	3-digit LED	3-digit LED	2.6" LCD, 2-line	2.6" LCD, 2-line
Programmable Methods	-	-	Up to 30 programmable files, each with 6 steps	Up to 30 programmable files, each with 6 steps
Automatic recovery after power failure	✓	✓	✓	✓
Safety features	No-load detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets	No-load detection; sudden load change detection; overload detection; ground-leak detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets	No-load detection; sudden load change detection; overload detection; ground-leak detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets	No-load detection; sudden load change detection; overload detection; ground-leak detection; over-voltage, current & temperature protection; maximum power output detection; shrouded plugs and sockets
Operating conditions	Ambient-40°C; ≤95% humidity	Ambient-40°C; ≤95% humidity	Ambient-40°C; ≤95% humidity	Ambient-40°C; ≤95% humidity
Stackable	-	✓	✓	✓
Number of output jacks	2 sets in parallel	4 sets in parallel	4 sets in parallel	4 sets in parallel
Regulatory conformity	EN-61010-1; CE	EN-61010-1; CE	EN-61010-1; CE	EN-61010-1; CE
Dual voltage	✓ 100-240 VAC		✓ 100-240 VAC	✓ 100-240 VAC
Construction	Polycarbonate housing with aluminium base	Flame retardant ABS-plate design with aluminium base	Flame retardant ABS-plate design with aluminium base	Flame retardant ABS-plate design with aluminium base
Dimensions (w x d x h)	140x191x84mm	190x305x95mm	190x305x95mm	190x305x95mm
Weight	1Kg	2.5Kg	2.5Kg	2.5Kg



nanoPAC-300 MINI Power Supply

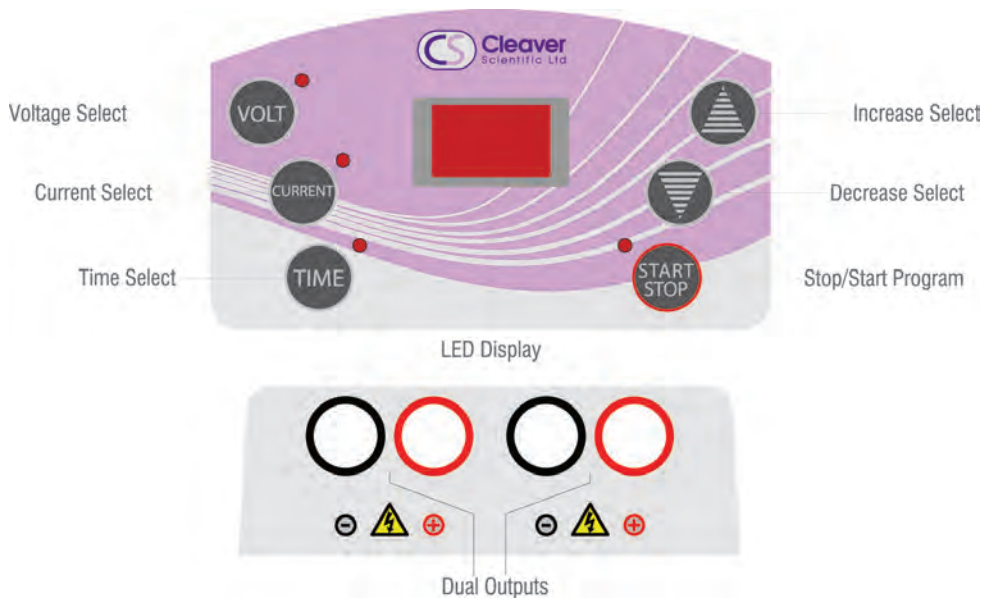
Now superseding the MINI150V and MINI300V as the omniPAC MINI power supply of choice, the new nanoPAC-300 offers many of the benefits attributable to omniPAC MIDI power supplies for the price of an omniPAC MINI unit. With enhanced features, such as a maximum constant current output of 400mA, in addition to constant voltage up to 300V, the nanoPAC-300 is capable of running all Cleaver Scientific horizontal multiSUB™ systems and vertical omniPAGE mini gels, either on a continuous run or timed setting up to 999 minutes. The nanoPAC-300's user-friendly interface is easily adjustable in 1V and 1mA increments, making it perfect for separations where precise settings are required, while its ultra compact size and two pairs of parallel power terminals, which can run two electrophoresis units simultaneously, save time and bench space. A dual voltage rating ensures full portability, and allows easy transportation between laboratories irrespective of their geographical location, to make these power supplies ideally suited to today's researcher. Other benefits include:

Output Specifications	
Voltage	10-300V
Current	10-400mA
Power	60W max.

- enhanced in-built safety features;
- a conspicuous 3-digit LED;
- alarm function;
- new wipe-clean polycarbonate housing.

Ordering Information	
NANOPAC-300	nanoPAC-300 MINI Power Supply, 300V, 400mA, 60W – 100-240VAC

power supplies





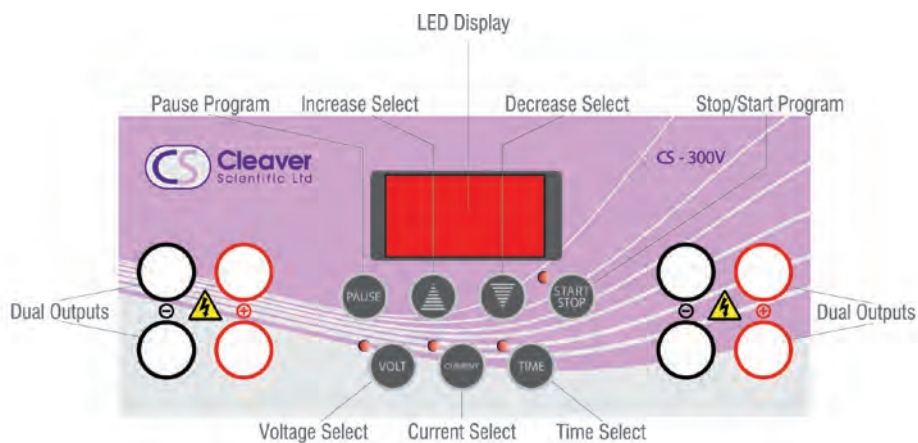
omniPAC MIDI CS-300V

With nearly twice the current and power of the market leader's equivalent unit, at 700mA and 150W, the CS-300V offers a specification comparable to any midi power supply presently available on the market. The CS-300V is perfectly suited to use with all Cleaver Scientific horizontal multiSUB™ systems and omniPAGE mini vertical gel units, and may also be adapted for specialist techniques including the Comet Assay, and clinical and high throughput horizontal electrophoresis. Microprocessor control with four sets of power terminals allow simultaneous operation of as many electrophoresis units either at a constant voltage or current setting, while the timer function may be set continuously or up to a maximum 999 minutes when an alarm sounds to signify termination of the run. A user-friendly interface houses a conspicuous 3-digit LED to aid set up, as well as a convenient 'pause/resume' key, a particularly useful feature during extended runs when it is necessary to access the gel tank to monitor buffer levels and sample migration. Given its high specification and remarkable versatility the CS-300V is relatively inexpensive, and benefits from additional features such as:

- a stackable design;
- rigorous in-built safety mechanisms;
- automatic crossover;
- dual voltage compatibility.

Output Specifications	
Voltage	2-300V
Current	1-700mA
Power	150W max.

Ordering Information	
CS-300V	omniPAC MIDI Power Supply, 300V, 700mA, 150W – 100-240VAC





omniPAC MAXI CS-500V

With a maximum 500V, 800mA and 300W voltage, current and power output, the omniPAC CS-500V MAXI is an excellent general purpose power supply that fits the broadest range of electrophoresis applications, and can run as many as four units under a constant or programmable setting. Its capacity to store up to 30 programmed files, each with 6 steps, makes the CS-500V perfect for techniques that benefit from subtle and gradual stepwise changes in the electrical parameters as the run progresses, such as DGGE and large format vertical PAGE using Cleaver Scientific's VS20-DGGE and WAVE systems. A large 2.6" LCD screen shows within 2 lines the real-time values of the electrical parameters during the run, along with the program file and individual step in operation, enabling the user to appraise the entire run at a single glance. The CS-500V MAXI is also equipped as standard with many features associated with the omniPAC MIDI, including timer and alarm, 'pause / resume' functionality, a stackable design and enhanced in-built safety features.

Output Specifications

Voltage	5-500V
Current	1-800mA
Power	300W max.

Ordering Information

CS-500V	omniPAC MAXI Power Supply, 500V, 800mA, 300W – 100-240VAC
----------------	---



omniPAC MAXI CS-3AMP

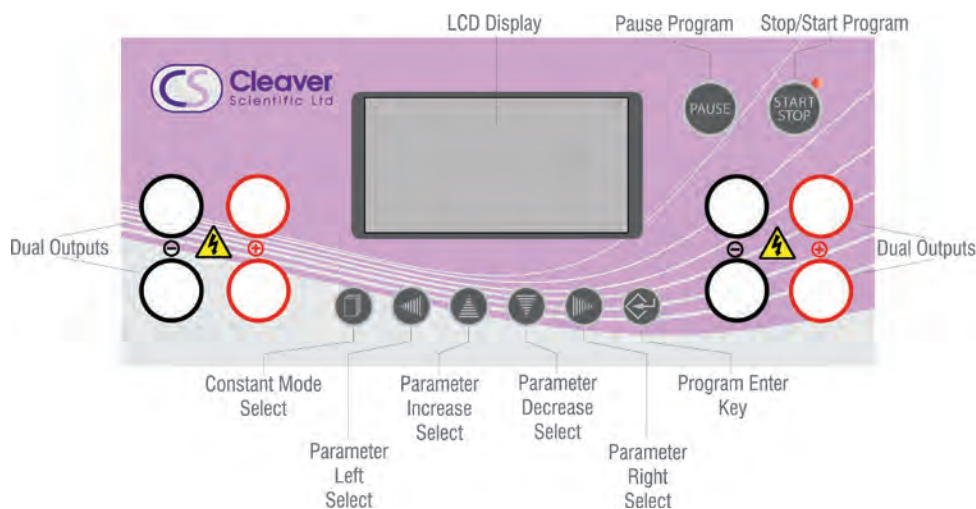
At 300V, 3000mA, 300W, the omniPAC MAXI CS-3AMP is designed for virtually all high current electrophoresis applications. The CS-3AMP's higher current output capability is perfect for electroblotting units with high-intensity plate electrodes, particularly Cleaver Scientific's omniBLOT maxi, VS20 WAVE and semi dry blotting systems. Electrotransfers may be performed as timed runs in constant or programmable mode to prevent overheating and buffer depletion, although a run time extendable to a maximum 9999 minutes in constant mode also favours overnight transfers undertaken at constant low current in wire electrode systems. The two-line 2.6" LCD screen allows the experimental parameters, program file and step to be viewed within a single screen during each run, while the CS-3AMP's four power terminals and robust current and power outputs make it suitable for high throughput SDS-PAGE using multiple vertical systems. The CS-3AMP shares the same standard features as the omniPAGE MAXI CS-500V.

Output Specifications

Voltage	5-300V
Current	10-3000mA
Power	300W max.

Ordering Information

CS-3AMP	omniPAC MAXI Power Supply, 300V, 3000mA, 300W – 100-240VAC
----------------	--





EV200 Maxi series

- Constant voltage, current or power
- Automatic crossover
- Overload Protection
- Short Circuit Protection

Maxi Technical Specifications

Timer	0 - 99.59 hours
Programs	9 of 9 sets each
Outputs	4 in parallel, 4mm sockets
Resolution	1V, 1mA, 1W
Dimensions	31 x 26 x 15cm (w x l x h)
Weight	10kg max.

Mini Technical Specifications

Timer	0 - 99.59 hours
Programs	EV222: 1 set; EV243: 9 of 9 sets
Outputs	3 in parallel, 4mm sockets
Resolution	1V, 1mA, 1W
Dimensions	24 x 20 x 13cm (w x l x h)
Weight	3kg max.

Ordering Information

EV222	Consort Power Supply	200 V	200 mA	20 watts	EV261	Consort Power Supply	600 V	1000 mA	300 watts
EV243	Consort Power Supply	400 V	300 mA	50 watts	EV215	Consort Power Supply	1200 V	500 mA	300 watts
EV231	Consort Power Supply	300 V	1000 mA	150 watts	EV232	Consort Power Supply	3000 V	150 mA	150 watts
EV202	Consort Power Supply	300 V	2000 mA	300 watts	EV233	Consort Power Supply	3000 V	300 mA	300 watts
EV265	Consort Power Supply	600 V	500 mA	150 watts	EV262	Consort Power Supply	6000 V	150 mA	300 watts



consort power supplies

All Consort Maxi Series (EV200) power supplies have four output terminals for up to four simultaneous runs. Powerful microprocessor control allows complex programming, while manual mode permits the setting of voltage, current, power and time for routine electrophoretic runs. The parameters may also be changed temporarily without interrupting the run.

Programming – up to 9 different programs, each with 9 steps, can be stored in the non-volatile memory for future recall.

Timer – can be set to automatically terminate the run and sound an alarm when the allocated time or volt hours has elapsed.

Automatic cross-over – each model has constant voltage, constant current and constant power capabilities with automatic cross-over while showing which parameter is kept constant.

Automatic recovery after mains failure – after restoration of power, the instrument will automatically continue the run for the remaining time.

Data Transfer – optional data acquisition/control software for PC is available to visualise and examine the stored run details, store and program the methods, add notes to the run, identify the unit, copy or delete programs in the unit's memory.

Safety precautions – the AC line is automatically disconnected from the high voltage transformer when a ground leakage path is detected protecting the user from potential shock. Other safety features include protection against any overload including accidental short circuit of the output and voltage increases smoothly.

consort mini EV222 and EV243

The Consort Mini EV222 and EV243 power supplies are ideally suited for use with small electrophoresis units. Both power supplies, which occupy little space within the laboratory, are portable and have several other features:-

Manual Set-up – voltage, current and power settings can be adjusted during the run.

Voltage ramp – this allows a linear voltage gradient for any step to be programmed at any step.

Automatic recovery after power failure.

3 output terminals.

The EV243 also benefits from 9 different programs, each with 9 steps; data-logging and data transfer to a PC, and PC remote control.

Power Supply Adaptors & Cables

Cleaver Scientific provides three types of power supply adaptor to ensure full compatibility between Cleaver Scientific gel tanks and power supplies from different manufacturers. These are as follows: -

- **CSL-4-4** – extends the length of the standard electrode cables (CSL-CAB) of Cleaver Scientific multiSUB™ or omniPAGE systems to fit within the deeply recessed power outputs of IEC 1010-1 compliant power supplies.
- **CSL-4-2** – allows Cleaver Scientific multiSUB™ and omniPAGE systems to be run from high voltage power supplies with 2mm outputs.
- **CSL-2-4** – connects the CSL-CAB2 cables supplied with the CSL-IEF and large format CSQ verticals to low-to-medium voltage power supplies – e.g. CS-500V.

Ordering Information

CSL-CAB	Standard replacement cable, 4mm, pk/2
CSL-CAB2	Replacement CSQ and CSL-IEF unit cables, pk/2
CSL-4-4	Power supply adaptors, 4-to-4mm, pk/2
CSL-4-2	Power supply adaptors, 4-to-2mm, pk/2
CSL-2-4	Power supply adaptors, 2-to-4mm, pk/2