

**FAST POLARITY SWITCHING HIGH VOLTAGE MODULES  
SC005 & SC008 CONSTANT CURRENT / CONSTANT VOLTAGE TYPES**



**SC Source Series**

**Application:**

Mass spectrometer electro spray ionization & atmospheric pressure chemical ionization source

**Features:**

- Constant voltage ESI:  $\pm 5\text{kV}$  or  $\pm 8\text{kV}$  types @  $500\mu\text{A}$  /  $300\mu\text{A}$  &  $2\mu\text{A}$  I<sub>mon</sub> for nano spray apps
- Tru-Current™ APCI:  $<2\mu\text{A}$  to  $\pm 50\mu\text{A}$  with adjustable compliance voltage
- Fast polarity switching within 10ms or 50ms types (limited by load capacitance & V / I range)
- True zero volt crossing
- Short circuit and flashover proof, fully screened metal case for good EMI immunity



This range of high performance mass spectrometer source supplies has been specifically designed to meet the needs of today's high throughput mass spectrometers. Featuring Tru-Current™ technology with control at the APCI source, and fast polarity changeover in less than 10mS, these supplies are ideal for multimode source applications where changeover and settling time are critical.

**ELECTRICAL SPECIFICATIONS: SC SOURCE SERIES**

UNIT TYPE	MODE(S)	OUTPUT VOLTAGE & CURRENT RANGE	CHANGEOVER TIME
SC005RCV050	Constant voltage	0 to $\pm 5\text{kV}$ at $\pm 500\mu\text{A}$	<50mS
SC008RCV050	Constant voltage	0 to $\pm 8\text{kV}$ at $\pm 300\mu\text{A}$	<50mS
SC008RCV050-03	Constant voltage	0 to $\pm 8\text{kV}$ at $\pm 2\mu\text{A}$ (Nano amp current monitor*)	<50mS
SC008RCC050	Constant current	0 to $\pm 50\mu\text{A}$ at $\pm 8\text{kV}$ variable compliance	<50mS
SC008RCD050	Constant current & voltage	0 to $\pm 50\mu\text{A}$ / $\pm 300\mu\text{A}$ at 0 to $\pm 8\text{kV}$	<50mS
SC005RCD050	Constant current & voltage	0 to $\pm 50\mu\text{A}$ / $\pm 500\mu\text{A}$ at 0 to $\pm 5\text{kV}$	<50mS
SC005RCx0x0	-	As above for 5kV equivalents	-
S00xRCx010*	-	As above for 10mS equivalents	<10mS

**ELECTRICAL SPECIFICATION**

Input:	+24 volt dc $\pm 10\%$ <1A. 0V input common to HV return and chassis
Output, voltage / current:	See table above. Note * Nano-amp version [ -03] o/p current can go as high as 800uA
Ripple:	<0.1% p/p
Line regulation:	<300ppm of rated output for $\pm 10\%$ input change
Load regulation:	<0.5% at rated output. 100 $\mu\text{A}$ to 300 $\mu\text{A}$
Temperature coefficient:	<100ppm/°C at rated output
Drift (after 1 hour warm up):	100ppm per hour, 200ppm per 8 hours
Control: V for CV and C for CC option:	0 to +5V analogue input for rated negative or positive output, accuracy $\pm 2\%$ , Z <sub>in</sub> $\geq 10\text{M}$
Compliance input:	0 to +5V for 0% to 100%, accuracy $\pm 2\%$ , Z <sub>in</sub> $\geq 10\text{M}$
I for CV option & V for CC option:	User accessible internal preset potentiometer, 0 to +5.1V available (pin 3)
Mode input (RCD types):	TTL: Hi = constant voltage, Lo = constant current, internal 47kohm pull up to +5V
Voltage & Current monitors:	0 to +5V for rated negative or positive output, accuracy $\pm 2\%$ , Z <sub>out</sub> <1 $\Omega$ . (4mA max o/p I)
* [-03 versions]:	[0 to +5V corresponds to 0 to 2 $\mu\text{A}$ - version for nanoamp current monitoring]
Polarity input:	TTL: Hi = +ve, Lo = -ve, internal 47kohm +5V pull up
Safety:	Conforms to EN61010-1:2001 (stored charge is <45 $\mu\text{C}$ )

\* Non-preferred options available for volume applications only

# SC Source Series

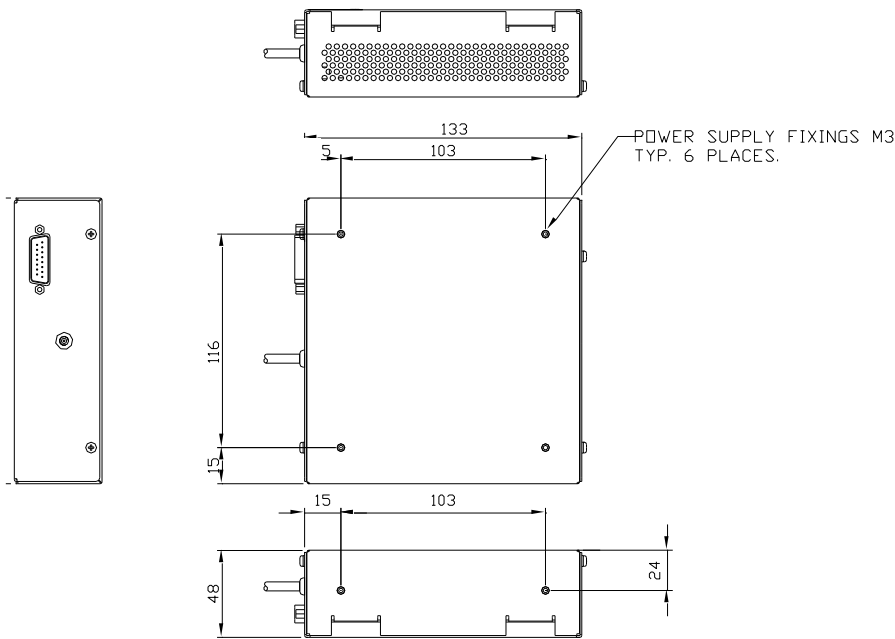
## MECHANICAL SPECIFICATION

Dimensions:	146 x 133 x 48 mm (5.75" x 5.25" x 1.9")
Weight:	1200g (2.6 lb) approx
Mountings:	6 off blind M3 bushes
Input & control:	15 way "D" connector
Output (Un-terminated cable):	CV only types: 0.75m of coaxial cable. CC and Nano amp monitor types 0.75m of triaxial cable.

## ENVIRONMENTAL SPECIFICATION

Temperature, operating:	+10°C to +50°C	Humidity (RH) <30°C non-condensing:	80% maximum
Temperature, storage:	-35°C to +85°C	Humidity (RH) >30°C non-condensing:	Decrease linearly to 50% at 40°C
Altitude, operating:	Up to 2,000m	Altitude, storage:	Up to 18,000m

The unit is to be supplied from a current limited supply providing 24V dc, impulse limited to overvoltage Category I (of IEC60364-4-443). For use in an environment of pollution degree 2.



## PIN ASSIGNMENTS 15WAY D TYPE

1	Master control input (0-5V) <sup>1</sup> Zin ≥10MΩ
2	Compliance control input (0-5V) <sup>1,4</sup> Zin ≥10MΩ
3	Variable reference output (0-5.1V) <sup>2</sup>
4	Mode control input (TTL) <sup>3</sup> Hi=Volt Lo=Current
5-7	Power, return (0V)
8	Polarity control input (TTL) <sup>3</sup> Hi= +ve Lo= -ve
9	Analogue ground
10	Current monitor output (0 to +5V) Zout <1Ω (Max 1.5mA o/p)
11	Voltage monitor output (0 to +5V) Zout <1Ω (Max 1.5mA o/p)
12	Enable input (TTL) <sup>3</sup> Hi or o/c =Off, Lo=On
13-15	Power, +24V supply

### Notes:

- Control & compliance Voltage must be between -0.5V & 5.2V.
- Reference o/p from internal 10kΩ pot.
- Logic i/ps have 47k pull up to 5V.
- 'Compliance input' sets maximum value of the uncontrolled parameter, that swaps with the Control i/p when changing Mode. Compliance input not available on nano-spray [03] option.

## PART NUMBER SELECTION

### SERIES CODE: SC

O/P kV	POLARITY	MODE OF OPERATION	SWITCHING SPEED	nA SCALED IMON OPTION
005 = ±5kV	R= Reversible	CV=Constant Voltage	050=<50msec	03
008 = ±8kV	CC=Constant Current		010=<10msec	
	CD=Switchable			

Example: SC0080RCV050= 8kV 50msec Reversing time, for operation in constant voltage mode.

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