

Excellence in High Voltage SC Source Series Data Sheet

SC005 & SC008 – constant current / constant voltage types

FAST POLARITY SWITCHING HIGH VOLTAGE MODULES

Application:

Mass spectrometer Electro Spray Ionization &
Atmospheric Pressure Chemical Ionization source

- Constant voltage ESI: $\pm 5\text{kV}$ or $\pm 8\text{kV}$ types
- 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
- 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, settling time, and precise current control are critical.

Electrical Specification

Unit Type	Mode(s)	Output voltage & current range	Changeover time
SC005RCV010	Constant voltage	0 to $\pm 5\text{kV}$ at $\pm 500\mu\text{A}$	$< 10\text{mS}$
SC008RCV010	Constant voltage	0 to $\pm 8\text{kV}$ at $\pm 300\mu\text{A}$	$< 10\text{mS}$
SC008RCC010	Constant current	0 to $\pm 50\mu\text{A}$ at $\pm 8\text{kV}$ compliance (variable)	$< 10\text{mS}$
SC005RCD010	Constant current & voltage	0 to $\pm 50\mu\text{A}$ / $\pm 500\mu\text{A}$ at 0 to $\pm 5\text{kV}$	$< 10\text{mS}$
SC008RCD010	Constant current & voltage	0 to $\pm 50\mu\text{A}$ / $\pm 300\mu\text{A}$ at 0 to $\pm 8\text{kV}$	$< 10\text{mS}$
SC00xRCx050	-	As above for 50mS equivalents	$< 50\text{mS}$

For corona source applications (constant current mode) the minimum controllable current is $2\mu\text{A}$. For special versions of these units we would be pleased to discuss your application with you.

Input:	+24 volt dc $\pm 10\%$ $< 1\text{A}$. 0V input common to HV return and chassis.
Output, voltage / current	See table above.
Ripple:	$< 0.1\%$ p/p
Line regulation:	$< 300\text{ppm}$ of rated output for $\pm 10\%$ input change.
Load regulation:	$< 500\text{ppm}$ at rated output.
Temperature coefficient:	$< 100\text{ppm}/^\circ\text{C}$ at rated output
Drift (after 1 hour warm up):	100ppm per hour, 200ppm per 8 hours.
Control input: V for CV option, C for CC option	0 to +5V analogue input for rated negative or positive output, accuracy $\pm 2\%$, Z_{in} 100K.
Compliance input: C for CV option, V for CC option	0 to +5V analogue input for rated output, accuracy $\pm 2\%$, Z_{in} 100K. User accessible preset pot, 0 to +5V available.
Mode input (RCD types):	TTL: Hi = constant voltage, Lo = constant current, internal +5V pull up.
Voltage & Current monitors:	0 to +5V for rated negative or positive output, accuracy $\pm 2\%$, Z_{out} 10K.
Polarity input	TTL: Hi = +ve, Lo = -ve, internal +5V pull up.
Safety	Conforms to EN61010-1:2001 (stored charge is $< 45\mu\text{C}$).

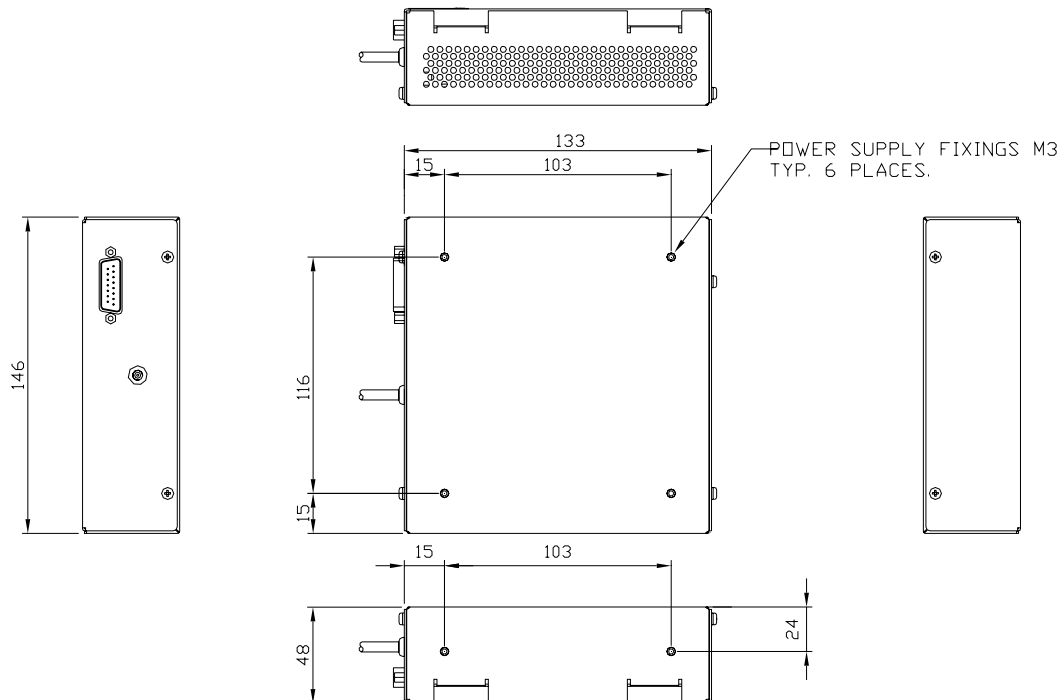
Mechanical Specification

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 (CV only types)	0.75m of URM 76 screened cable
(CC types)	0.75m of Belden screened cable (all are un-terminated, or customer specified connector to order)

Environmental Specification

Operating temperature range	+10 to 45°C, indoor use only
Storage temperature range	-10 to +75°C
Operating altitude	2000m
Storage altitude	18000m
Operating humidity	80% for temperatures up to 31°C, decrease linearly to 50%RH at 40°C
Storage humidity	<95% RH non-condensing
Pollution	Pollution categories II

Pin	Assignment	Pin	Assignment
1	Master control input (0-5V)	9	Analogue ground
2	Compliance control input (0-5V)	10	Current monitor output (0 to +5V)
3	Monitor return	11	Voltage monitor output (0 to +5V)
4	Mode control input (TTL) Hi=Volt, Lo=current	12	Enable input (TTL) Hi or o/c =Off, Lo=On
5-7	Power, return (0V)	13-15	Power, +24V supply
8	Polarity control input (TTL) Hi= +ve, Lo= -ve		



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