

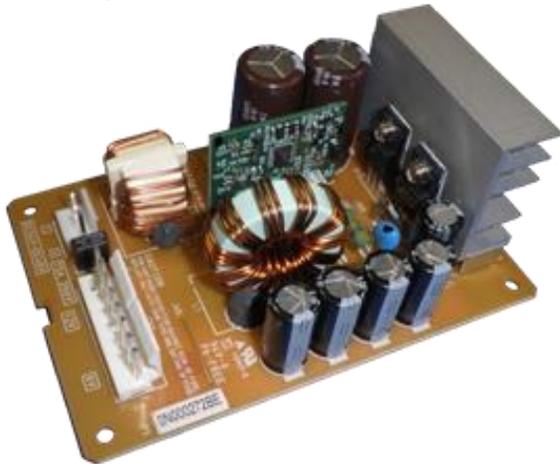
# DC-DC Converter

MODEL: SPS122 - Continuous 12V / 10A



Gaming

Modern EU gaming Machines require increased +12V current to accommodate the latest gaming peripherals. DC Converters have been engineered with SanKen's latest technology to efficiently convert redundant power from our lamp gaming PSU and provide additional +12V capacity at the point of use.



## Features & Benefits

- Input Voltage 34V ~ 48V
- Continuous power of 120W @ 10A
- Over current protection
- Over voltage protection
- Input Under Voltage
- Fixed mounting locations
- Natural air cooling
- Size (W) x (H) x (D)  
110mm x 75mm x 45mm

34V ~ 48V



12V

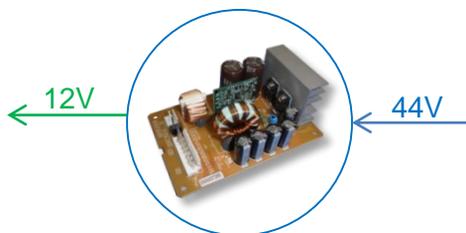
Input

Output

Support Typical 12V Peripherals



Configuration Example



Monitors



LED Lighting / Top Box



QXi-200 Gaming Platform

SanKen Power Systems UK Ltd.

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Input Conditions	Rated Input Voltage	DC 34V~48V (from SPS045 or SPS077)
	Allowable Input Voltage Range	DC32V to DC50V
	Input Current (typ)	3.8A typ. (34Vin / 12V@10A)
	Efficiency (typ)	>90% (34~48Vin @ 12V, 10A output)
	Inrush Current (max)	20A (limited by SPS045 or SPS077 34~48V output)

Output Conditions	Rated Output Voltage	12Vdc (Nominal 12.1Vdc)
	Output Voltage Variation	5%
	Rated Output Current	10A (9.5A if Vin >39.6V)
	Maximum Peak Current	10A
	Allowable Output Current Range	0-10A
	Rated Output Power	120W max
	Ripple Noise(hf spike) V	250mV (600mVpk-pk)
	Output Holding Time (min)	Depends on SPS077W

Additional Functions	Over current Protection	10.5 ~ 16A fold back-auto restart
	Over voltage Protection	14 ~ 20V Latch mode (requires restart to clear)
	Under voltage Protection	15~25V (Turn on) , 14~24V Turn off- auto restart if Vin increased

Environmental Conditions	Operating Temperature Range		0°C ~+50°C
	Storage Temperature Range		-10°C ~ +70°C
	Operating Humidity Range		5% ~ 85% none condensing
	Storage Humidity Range		-10 ~ 70 deg C
	Cooling Requirements		Natural cooling, open pcb.
	Vibration Resistance	No. of vibrations	10 to 55Hz
		Sweep time	3 minutes
		Acceleration rate	19.6m/S <sup>2</sup> (2G)
		Vibration direction	X,Y,Z
		Vibration time	One hour in each three directions
Shock Resistance	10G. Shock test consists of pivoting the power supply from one edge of its bottom side, on a flat surface (such as wood having a thickness of 10mm or more) and allowing the opposite edge to fall from a height of 50mm to this surface. The test is performed three times on each edge of the bottom side of the supply.		

Insulation	Insulation Withstand Voltage	Input-Output	3000V AC one minute (leakage current 15mA or less)
		Input-FG	2000V AC one minute (leakage current 15mA or less)
		Output-FG	500V AC one minute (leakage current 15mA or less)
	Insulation Resistance	Input-Output	100 MΩ (measured with DC 500V megger)
		Input-FG	
		Output-FG	

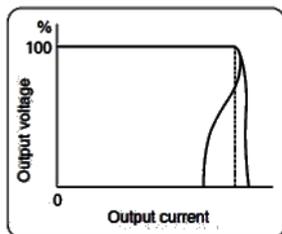
External Structure / Standard	External Appearance	Open Flamed
	Input Type	Connector
	Output Type	Connector
	External Dimensions	160(W) × 75(D) × 37(H) mm
	Weight	400g
	Safety Standards	Designed to meet UL60950-1、 C-UL(CSA60950-1)
	Conducted Emission	Designed to meet SEMKO(EN60950-1) certified.

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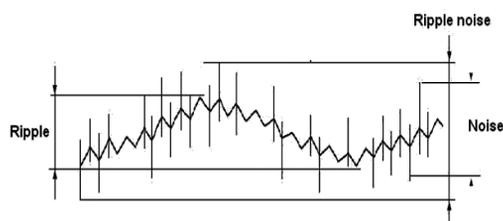
Specification Note

## Over current Protection

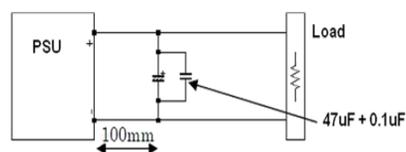


Current is limited via an OCP circuit (over current protection) . Once the current reaches the trip level the output power “folds back” falling to a safe level. Auto restart when overload is removed.

## Ripple and Noise measurement



When measuring ripple voltage, measure at 100mm from PSU output with a 47uF electrolytic capacitor and 0.1uF film capacitor.



## Application Guide

The converter should be mounted internally in the machine. Input DC voltage should be from the SPS077W. Correct wire size / fixing method to meet the machine end safety approval should be considered. Care should be taken to consider the maximum output current including overload (OCP level) when selecting the loom wire size for each connector. In the case of the 0V returns, if possible route the return wires back to the same output connector as the positive 12V DC. Clearance should be maintained around the edges of the product for good ventilation.

Connectors

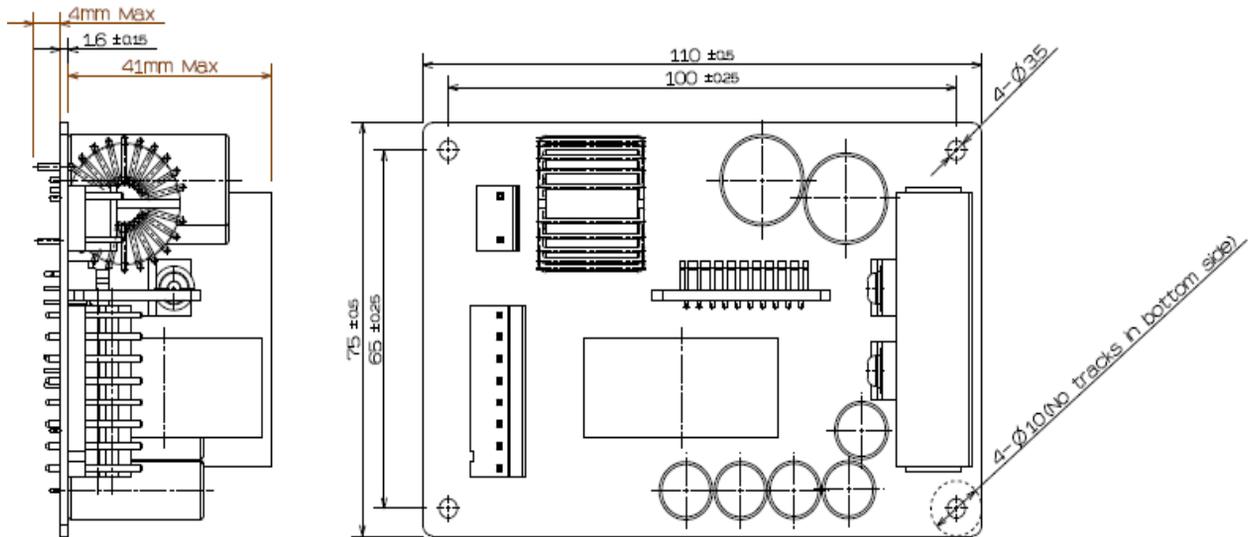
CN1 (DC input)	JST B2P3-VH(LF)(SN)
1	0V
2	Not fitted
3	34V~48Vdc

CN2 (DC output)	MOLEX 26-60-4080
1	0V
2	0V
3	0V
4	0V
5	+12V
6	+12V
7	+12V
8	+12V

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## Mechanical Information



### Note:

#### Fixing points...

Recommended fixing method is plastic pillars with threaded bolts screwed from the top side of the pcb. Snap on pillars can be used only with a four point tool in order to push the board home from each corner without putting additional pressure on the main pcb.