SCA-2008 simmer supply

User manual

Overview / Applications

SCA-2008 simmer supply is the device that strikes and maintains low-current discharge in the flashlamp in order to increase lifetime and operation stability of the lamp.
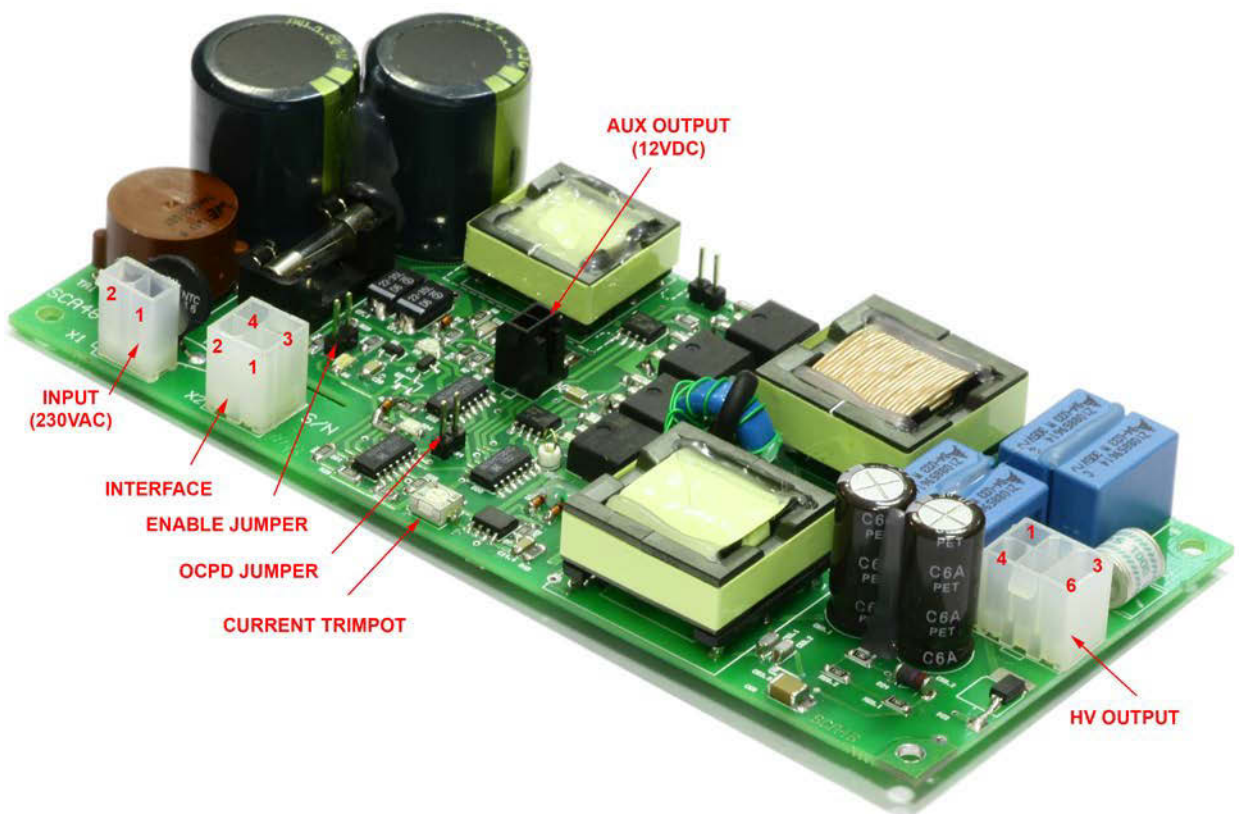
Input voltage – 230 VAC, max. output voltage – 200V, max. output current – 800mA, max. output power – 70W. Restrike rate is approximately 3 Hz.

SCA-2008 may be used in laser systems with serial triggering as well as in laser systems with external triggering.

Cooling

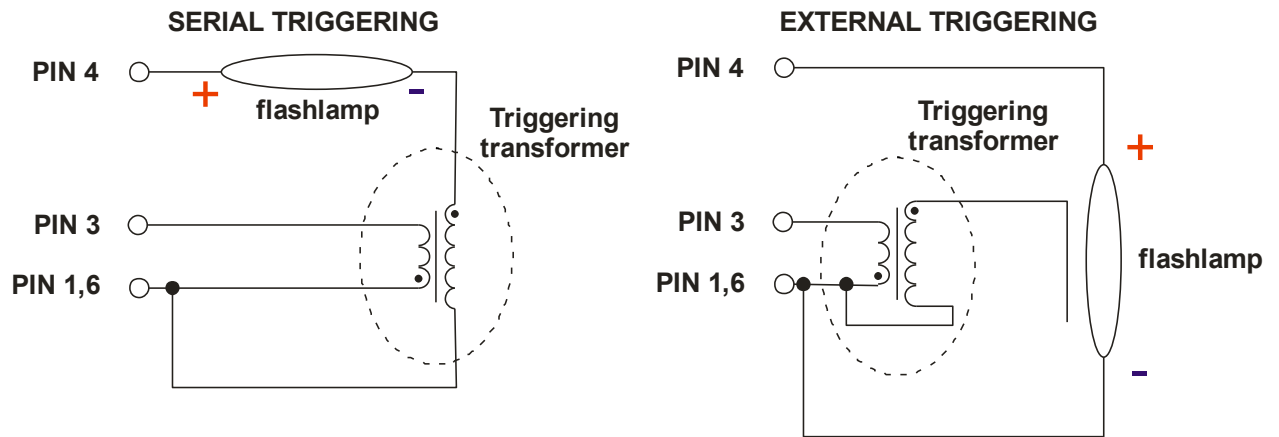No external cooling is required.

Appearance

Connections, signals, signal descriptions

INPUT (TO 230VAC MAINS): Molex Minifit MF-2MA

PIN (color)	DESIGNATION	DESCRIPTION
1 (blue)		230V AC wire 1
2 (blue)		230V AC wire 2

OUTPUT (TO TRIGGERING TRANSFORMER AND LAMP): Molex Minifit MF-6MA

| PIN (color)	DESIGNATION	DESCRIPTION
1, 6 (black)	OUTPUT Ground	Negative of triggering transformer primary winding
3 (blue)	OUTPUT Negative	Positive of triggering transformer primary winding
4 (red)	OUTPUT Positive	Flashlamp anode (+)

SERIAL TRIGGERING   **EXTERNAL TRIGGERING**

PIN 4   + flashlamp –   Triggering transformer

PIN 3

PIN 1,6

PIN 4   Triggering transformer   +   flashlamp   –

PIN 3

PIN 1,6

AUX OUTPUT (E.G. TO COOLING FAN): Molex Microfit MF-2MA

PIN (color)	DESIGNATION	DESCRIPTION
1 (red)	+12 VDC	+12V DC, current capability >100mA
2 (black)	RTN	+12V DC return

INTERFACE (SIMMER SUPPLY CONTROL): Molex Minifit MF-4MA

PIN (color)	DESIGNATION	DESCRIPTION
1 (violet)	Sensor Return	Return *Simmer Sensor* signal
2 (yellow)	Simmer Sensor	*Simmer Sensor* circuit is closed while simmer current flows through flashlamp and is open while simmer current is absent
3 (red)	Enable	Since +5V DC voltage is applied to this pin simmer supply tries to strike and maintain low-current discharge (simmer) in the flashlamp. If flashlamp triggering is failed simmer supply module tries to trigger it again with approximately 3 Hz repetition rate. After successful triggering the simmer supply can support up to 800mA flashlamp current (500mA is set by default). If simmer discharge isn't established in approx. 4s, simmer board stops operations, to continue it must be disabled, then enabled again. Simmer will be maintained until 0V is applied to *PIN2*.
4 (black)	Enable Return	Return *Simmer Enable* signal

INTERFACE CIRCUITS:

INTERFACE: Enable

INTERFACE: Simmer Sensor
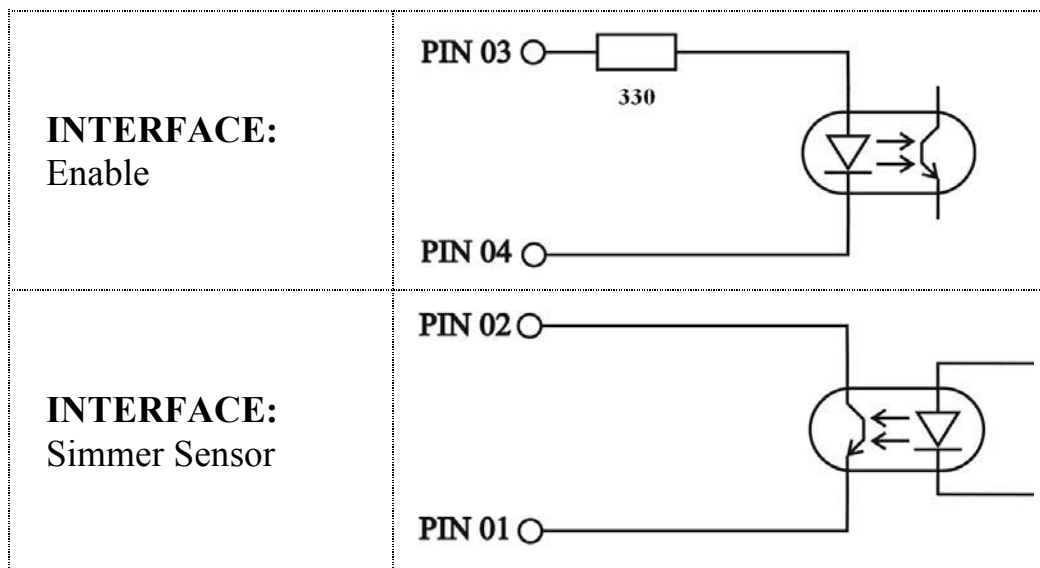
CURRENT REGULATION TRIMPOT

Simmer current is regulated by this trimpot (trimming potentiometer).
Value by default is about 500mA.

ENABLE JUMPER:

Use this jumper instead of *ENABLE* pin of *INTERFACE*.
Don't use *ENABLE* pin and *"ENABLE" JUMPER* at the same time

Safety

Warning! This equipment produces high voltages that can be very dangerous. Don't be careless around this equipment.

- Disconnect the module from the mains before making or changing electrical or mechanical connections.
- SCA-2008 simmer supply is designed to be installed inside a properly grounded metal. It is the user's responsibility to ensure that personnel are prevented from accidentally contacting the SCA-2008. **Casual contact could be fatal!**

Operations

1. Connect triggering transformer and flashlamp to SCA-2008 simmer supply
2. *Disable* simmer supply (*PIN2* of *INTERFACE*)
3. Apply *230V AC* power to the module
4. *Enable* simmer supply (set +5V DC on *PIN2* of *INTERFACE* or use *"ENABLE" JUMPER*)
5. Wait 5-10 seconds for *Simmer Sensor*. If it fails shut down your system

To power down SCA-2008
1. Remove *230V AC* power from the module or *DISABLE* it.

Faults / protections

There are next protections available:
1. From short-circuit at the output – simmer module considers short-circuit at the output as one of normal regimes of operations
2. From open-circuit – if simmer discharge isn't established in approx. 4s, simmer board stops operations; to continue it must be disabled, then enabled again. The protection can be disabled with OCPD Jumper.

Warning

Simmer board isn't protected from voltage of reverse polarity applied to the output which would appear as a result of transient process after the flash. The cause of oscillation is inductance of wires and flashlamp itself and cannot be completely eliminated. To suppress pulses of reverse polarity, recuperative diodes must be included in schematics of your discharge circuit. Please consult us if you have further questions.

Specification

INPUT	
Input voltage	230 VAC, 50/60 Hz
Maximal input current	0.4 A
Fuse	1 A
SIMMER PARAMETERS	
Output current	300-800 mA (regulated with trimpot, about 500 mA is set by default) *
Output voltage	Is set automatically in accordance with current set point and V/A curve of your flashlamp
Max. output voltage	200 V *
Max. output power	70 W *
Open circuit voltage	1400 V
TRIGGERING PARAMETERS	
Triggering voltage	1 kV
Triggering pulse energy	~150 mJ
Restrike rate	~3 Hz
Protections	- Short circuit at the output - Open circuit
Cooling	No external cooling is required
Environment:	
Operation temperature	-20 … +45 °C
Storage temperature	-40 … +85 °C
Humidity	90%, non-condensing
Size (LxWxH)	150x68x38 mm
Weight	0.2 kg

(*) The performance of simmer module is limited with maximal output current, or with maximal output voltage, or with maximal output power. In other words, maximal output voltage and maximal output current cannot be achieved at the same time because of maximal output power limitation.