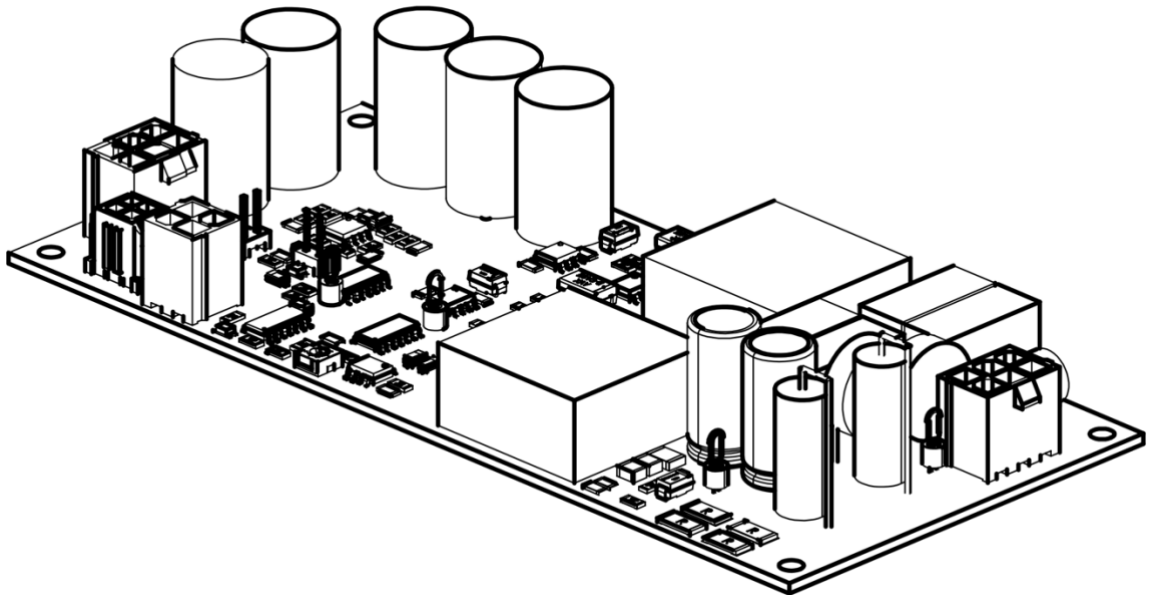


## SBZ-2008 simmer supply

### User manual



**Warning!** This equipment can be dangerous.  
Please read the entire user manual carefully before operating the product.

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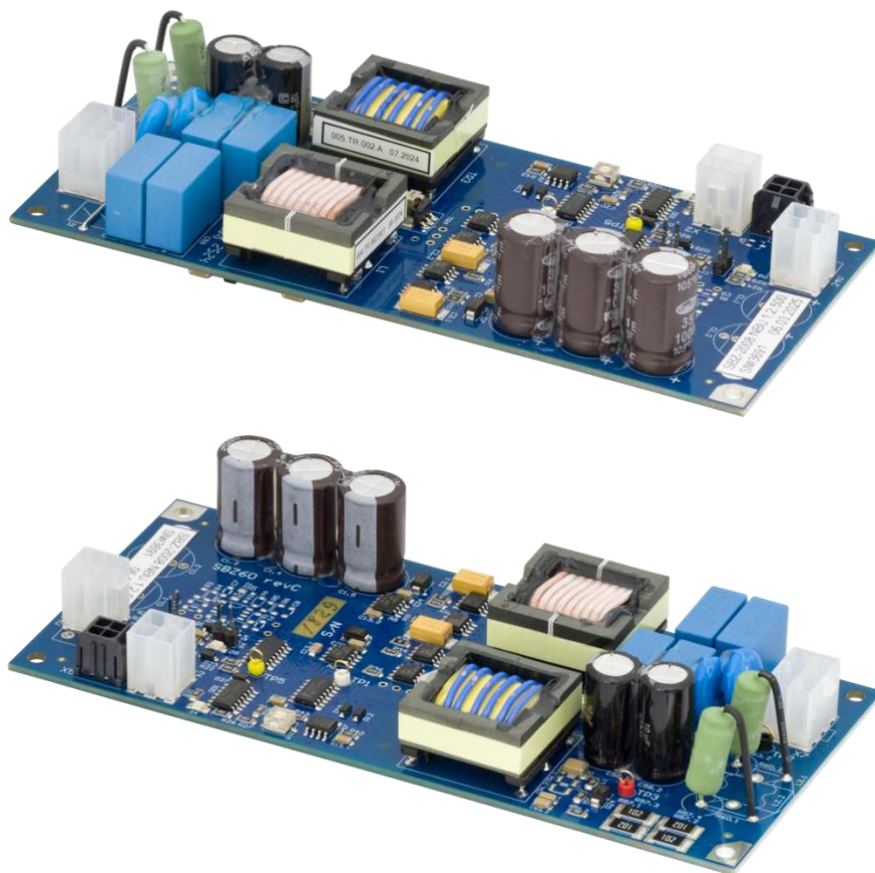
## Overview / Appearance

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The SBZ-2008 simmer supply strikes and maintains a low-current discharge in a flashlamp to increase the lamp's lifetime and operational stability.

Input voltage – 24V DC, max. output voltage – 200V, max. output current – up to 800mA (model dependent, see also *How to order?* section), max. output power – around 70W. Restrike rate is approximately 3 Hz.

The SBZ-2008 can be used in laser systems with either series or external triggering.



## Cooling

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No external cooling is required.

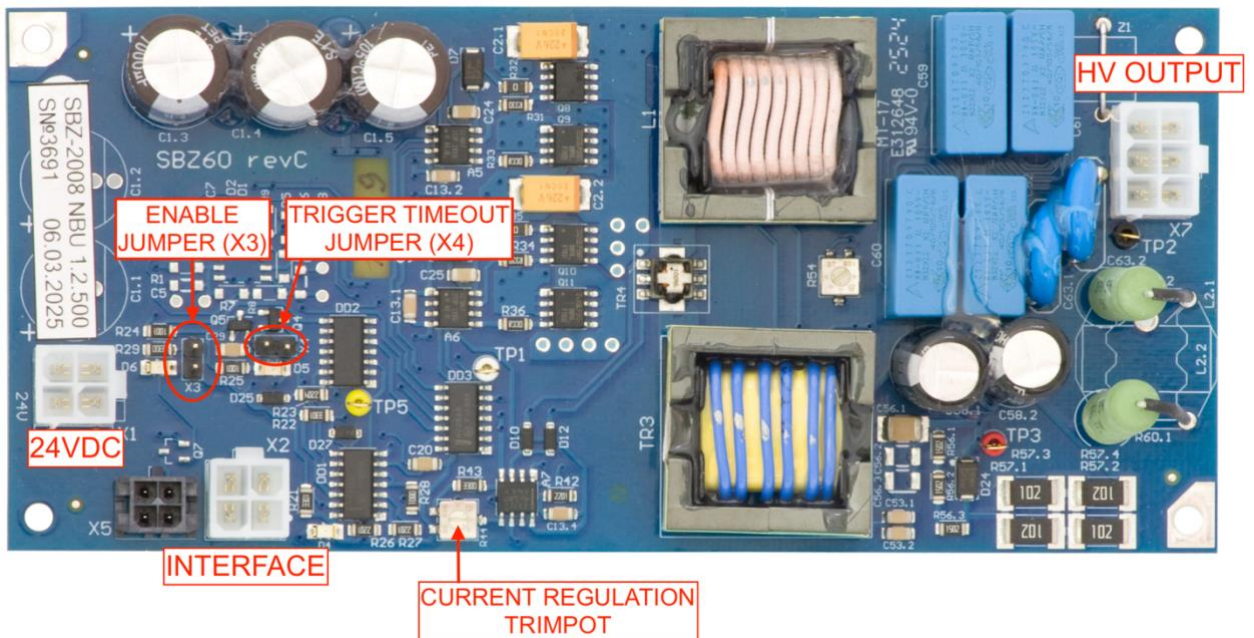
## Contents of delivery

By default, the delivery package contains the following parts:

- SBZ-2008 simmer module – 1pc
- INTERFACE cable (50cm length) – 1pc
- HV OUTPUT cable (50cm length) – 1pc
- 24VDC cable (50cm length) – 1pc

The trigger transformer is not included with the standard delivery and must be purchased separately. Customized delivery content is available upon request.

## Connections, signals, signal descriptions



**24VDC (TO +24V POWER SUPPLY MODULE):** Molex 39-30-1040

4	3
2	1

PIN (color)	DESIGNATION	DESCRIPTION
1, 4 (-)	N/C	Not connected
2 (red)	+24V DC	Connect to this pin the positive wire of 24V DC power supply Input: 24V DC. Max. current 4A
3 (blue)	+24V DC Return	Return from power supply producing 24V DC

## HV OUTPUT (TO TRIGGER TRANSFORMER AND LAMP):

Molex 39-30-1060

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6	5	4
3	2	1

PIN (color)	DESIGNATION	DESCRIPTION
1, 6 (black)	HV RETURN	Flashlamp cathode (-) Negative of trigger transformer primary winding
3 (blue)	HV TRIGGER	Positive of trigger transformer primary winding
4 (red)	HV	Flashlamp anode (+)

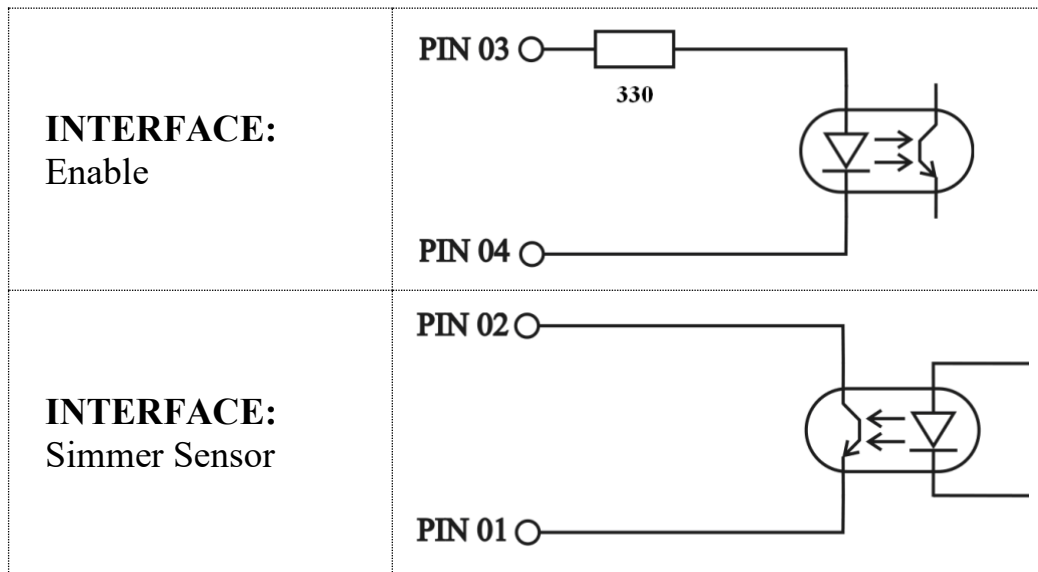
## INTERFACE (SIMMER SUPPLY CONTROL): Molex 39-30-1040

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4	3
2	1

PIN (color)	DESIGNATION	DESCRIPTION
1 (violet)	Sensor Return	Return of the <i>Simmer Sensor</i> signal.
2 (yellow)	Simmer Sensor	The <i>Simmer Sensor</i> circuit is closed while simmer current flows through the flashlamp and is open while simmer current is absent.
3 (red)	Enable	Once a +5V TTL signal is applied to this pin, the simmer supply will attempt to strike and maintain a low-current discharge (simmer) in the flashlamp. If the flashlamp triggering fails, the simmer supply module will attempt to trigger it again with approximately 3Hz repetition rate. After a successful triggering, the simmer supply can support flashlamp current of up to 800mA. By default, the current is set to 500mA. If a simmer discharge is not established in approximately 4 seconds, the simmer board will stop operations. To continue, it must be disabled and then enabled again. Simmer discharge will be maintained until 0V is applied to <i>PIN3</i> .
4 (black)	Enable Return	Return of the <i>Simmer Enable</i> signal.

## INTERFACE CIRCUITS:



## CURRENT REGULATION TRIMPOT:

The simmer current is adjusted by this trimpot (clockwise rotation leads to simmer current increase). The default value is about 500mA.

## ENABLE JUMPER:

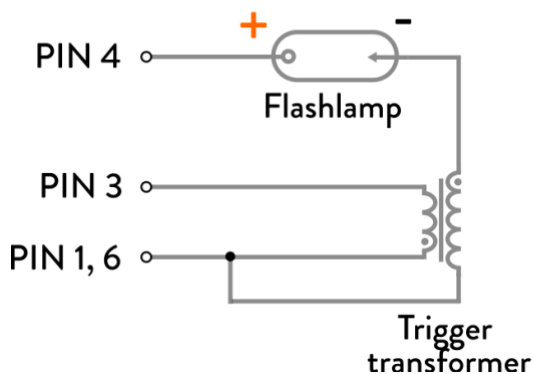
Use this jumper instead of *ENABLE* pin of *INTERFACE*.  
Don't use *ENABLE* pin and *ENABLE JUMPER* at the same time.

## TRIGGER TIMEOUT JUMPER:

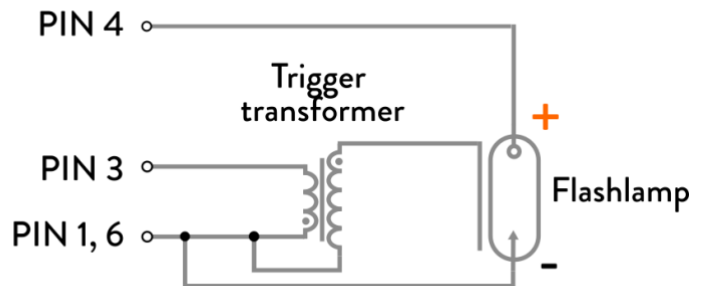
Setting the jumper disables the corresponding protection.

## Triggering

### SERIES TRIGGERING



### EXTERNAL TRIGGERING



## Safety

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**Warning!** This equipment produces high voltages that can be very dangerous. Be careful around the device.

- Disconnect the module from the DC power source before making or changing electrical or mechanical connections.
- The SBZ-2008 simmer supply is designed to be installed inside a properly grounded metal enclosure. It is the user's responsibility to ensure that personnel are protected from accidentally coming into contact with the SBZ-2008. **Accidental contact could be fatal!**

## Operations

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1. Connect +24V DC power supply, the trigger transformer and the flashlamp to the SBZ-2008 simmer supply.
2. *Disable* the simmer supply (*PIN3* of *INTERFACE*).
3. Apply +24V DC power to the module.
4. *Enable* the simmer supply (set +5V TTL on *PIN3* of *INTERFACE* or use *ENABLE JUMPER*).
5. Wait 5-7 seconds for the *Simmer Sensor*. If it fails shut down your system.

To power down the SBZ-2008

1. Remove +24V DC power from the module or *DISABLE* it.

## Faults / Protections

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The following protections are available:

1. From overheating of internal components.
2. From short circuit at the output – the simmer module considers a short circuit at the output to be a normal operating condition.
3. From open circuit – if a simmer discharge is not established in approx. 4s, the simmer board stops operations; to continue it must be disabled and then enabled again. The protection can be disabled with TRIGGER TIMEOUT JUMPER.

### Warning

The simmer module is not protected from reverse-polarity voltage at the output, which may occur due to a transient process after the flash. Oscillation is caused by the inductance of the wires and the flashlamp itself and cannot be fully eliminated. To suppress reverse-polarity pulses, recuperative diodes must be included in your discharge circuit schematics. Please consult us if you have further questions.

## Specifications

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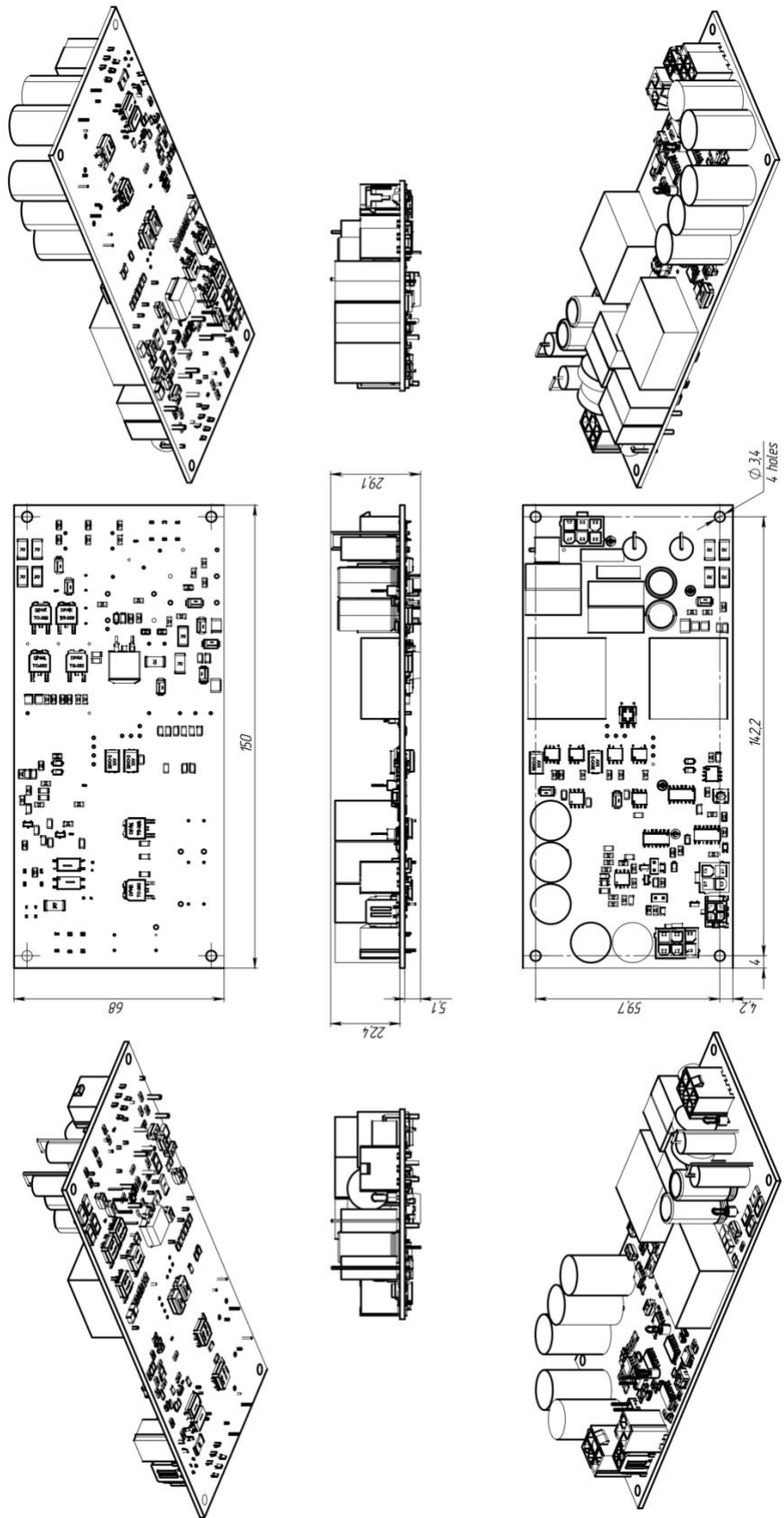
### ELECTRICAL:

<b>INPUT:</b>	
Input voltage	24V DC
Maximum input current	4A max
<b>SIMMER PARAMETERS:</b>	
Output current (*)	Model dependent, see also <i>How to order?</i> section
Output voltage	Is set automatically in accordance with current set point and V/A curve of your flashlamp
Max. output voltage (*)	~200V
Max. output power (*)	~70W
Open circuit voltage	1400V
<i>(*) The performance of the simmer module is limited by its maximum output current, maximum output voltage, or maximum output power. In other words, the maximum output voltage and maximum output current cannot be achieved simultaneously due to the maximum output power limitation.</i>	
<b>FLASHLAMP TRIGGERING PARAMETERS:</b>	
Trigger voltage	1kV (other on request)
Trigger pulse energy	~160mJ @ 1kV
Restrike rate	A few Hertz (automatically adjusted)
<b>Protections</b>	<ul style="list-style-type: none"><li>- Short circuit at the output</li><li>- Open circuit (trigger timeout)</li><li>- Overtemp</li></ul>
<b>Cooling</b>	No external cooling is required
<b>ENVIRONMENT:</b>	
Operation temperature	0 ... +40 °C
Storage temperature	-20 ... +60 °C
Humidity	<90%, non-condensing

### MECHANICAL:

<b>Size (LxWxH)</b>	150x68x30mm (see also the dimensional drawing below)
<b>Weight</b>	<0.2kg

# Dimensional drawing



## How to order?

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By default, we offer a few standardized versions as below:

P/N (version)	Description	Comments
SBZ-2008 or SBZ-2008-01	Standard (high-current) version: <ul style="list-style-type: none"><li>- ~300-800mA simmer current adjustment range</li><li>- 500mA simmer current (other set point on request)</li><li>- 1000V trigger voltage (other on request)</li></ul>	Fits well for most of the customers
SBZ-2008-02	Low-current version: <ul style="list-style-type: none"><li>- ~150-400mA simmer current adjustment range</li><li>- 200mA simmer current (other set point on request)</li><li>- 1000V trigger voltage (other on request)</li></ul>	For small flashlamps

For large flashlamps or two flashlamps connected in series, please better consider SBZ-3008 simmer module.

Besides, the following options are available upon request:

- Simmer current preset (any within simmer current adjustment range)
- Trigger voltage (selectable in 350-1000V range, other on request)
- Modified cables and connectors
- Current program analog signal
- Current monitor analog signal
- 48VDC input