

OPTIMO DIY POWER SUPPLY MODULE USER'S MANUAL

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I. Introduction

Thank you for purchasing this JCAT product. OPTIMO DIY POWER SUPPLY MODULE is a linear power supply module designed to work with mains transformer to provide regulated low noise DC output. It is designed for use by skilled technician, with right set of skills and tools. Make sure to read this user manual prior to connection and use of the product.

Though you should get great performance out of the box, the unit will break in and typically sound best after 100 to 150 hours of operation.

II. Specification

Output Voltage		5 - 12*	V
Nominal Output Current		3	A
Max Output Power		40	W
Standard Operating Temperature		od 0 do +40	°C
Storage Temperature		od -40 do +85	°C
AC input voltage		14 ± 5%**	V
Mains Frequency		od 48 do 63	Hz
Internal Regulation Error		<1	%
Regulation Error		<1	%
Overcurrent Protection	Electronic Limiter	130	%
Short Circuit Protection	Electronic Limiter		
Serial Connection	Not Allowed		
Parallel Connection	Not Allowed		
Dimensions		122x51x60	mm
Weigh		190	g

* depending on the version, see details on the type plate

** read and understand transformer recommendations in section VI. Of this manual

III. Package Contents

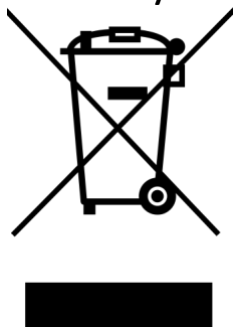
- Optimo DIY module.
- User manual

IV. WARNING! IMPORTANT SAFETY INFORMATION

- This product is meant to be used by skilled technician. NEVER, under any circumstances, perform any connections with mains AC. Safety standards for electrical

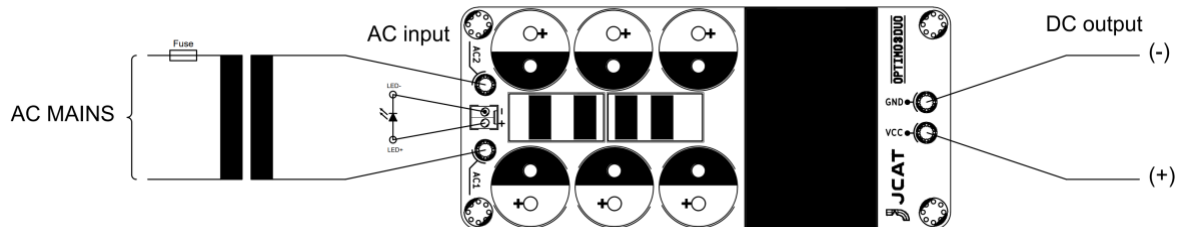
devices, in particular regarding the class of protection, degree of protection must be strictly observed. Violating safety requirement might led to electrocution or fire.

- Make sure to provide sufficient ventilation for the power supply module.
- Keep the power supply module in a dry environment away from humidity.
- The power supply module is not intended for outdoor usage.
- The power module should not be discarded as unsorted waste but must be sent to separate collection facilities for recovery and recycling.



- Keep the manual for future use of the product. The manual is also available to download as a PDF file from www.jcat.eu.

V. Connections



Optimo module has following connections:

1. AC input connectors (AC1, AC2) for connecting power transformer.
2. DC output (GND (-), VCC (+)), regulated DC output.
3. Power ON LED indicator connector (2.54mm locking connector).

Make sure to connect AC input to AC input connectors. Connecting AC voltage to DC output will destroy module !!!

VI. Power Module Installation

1. Mount module to a stable surface using mounting posts, module mounting holes are designed for M3 screws, and arranged in 105 × 43 mm rectangular pattern. Protect it from foreign objects.
2. Provide enough ventilation. As a rule of thumb ventilation holes in enclosure should be located around heatsinks attached to components on Optimo DIY module.

3. Module is designed to work with AC power transformer. Recommended secondary side voltages under load for typical module output voltages are listed below:

DC Output	Recommended transformer AC voltage
5V	5.5 V
7V	6.5V
9V	8.5V
12V	11V
15V	14V

Using lower voltage transformer will result in unstable DC output voltage. Higher voltage should be avoided as additional heat will be dispatched, which can result in module thermal shutdown and will shorten it's lifespan. Remember that transformer voltage depends on many factors, and varies with load, mains voltage and many other factors. With perfectly matched transformer voltage the unregulated DC voltage in module, that can be measured on leads of electrolytic filter capacitors, at 3A load should be 1V higher than module output voltage.

Minimum transformer power is calculated using following formula: $S=4,7 \times U_{Tr}$, where U_{Tr} is nominal output voltage of the transformer, so for 5V module and recommended 5.5V transformer voltage, the minimal transformer power should be 25,85VA. We do not recommend to use smaller

transformer, if so additional fuse matching max transformer current had to be used

4. Solder transformer leads and DC output wires to Optimo board. Use lead free solder. Maximum recommended temperature for soldering is 340C. Due to high thermal mass of PCB we recommend to use at least 50W soldering iron. Do not use higher temperature, it might damage the PCB and create poor solder joint. If your iron is not able to provide enough heat setting higher temperature will only make things worse. Double check all connections and mount of the module before turning it on. All modules are factory tested and are expected to work without any issues.

VII. Troubleshooting

If the power supply unit fails to function properly, please go through the below checklist:

1. Check to make sure the AC power cord is properly connected to the AC source and the power supply unit.
2. Check to make sure the AC source is On.
3. Check and all connections.
4. If you are still experiencing difficulties to get the power supply unit to function properly, please visit www.jcat.eu for further technical support instructions or contact us via email at support@jcat.eu

VIII. Warranty

The warranty period is 24 months from the date of purchase. During the warranty period JCAT will repair or replace broken components with parts of similar or equal performance, provided that:

- The product is returned to JCAT along with a receipt or proof of purchase.
- Return shipping cost is covered by the customer.
- The product was used properly according to the intended purposes.
- The product was not damaged due to acts of nature, such as lightening, flood or fire.
- The product's has no visible signs of misuse.
- For all faulty items outside of our Returns Policy, please contact us on support@jcat.eu
- For additional details, please visit www.jcat.eu/terms-of-service/