MiniBar 15 16 Crowbar Circuit Basic Kit

MiniBar 15 16 Crowbar Circuit Basic Kit User Manual

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MiniBar

MiniBar 15 16 Crowbar Circuit Basic Kit

Product Information

- **Specifications:**
  - **Product Name:** Mini-Bar 15-16 Crowbar Circuit Basic Kit
  - **Designed by:** WA2IVD
  - **Manufacturer:** A2Z Tech LLC
  - **Year:** 2023
  - **Operating Voltage:** 13.8 Volts DC
  - **Trip Voltage Options:** 15 volts or 16 volts
  - **Maximum Continuous Current:** 15 Amps
  - **Maximum Current @ 50% Duty Cycle:** 25 Amps (for up to 30 seconds)
  - **Maximum Fuse Size:** 30 Amps

Product Usage Instructions

- **Introduction:**
  - The MiniBar 15-16 crowbar circuit is designed to protect electronic equipment from over-voltage damage during power supply failures. It operates at 13.8 Volts DC and can be set to trip at either 15 volts or 16 volts.
- **Setting Trip Voltage:**
  - To select the trip voltage, solder a jumper on the board:
  - Solder a Jumper from J1-1 to J1-2 for a 15-volt trip voltage
  - Solder a Jumper from J1-2 to J1-3 for a 16-volt trip voltage
- **Wiring Options:**
  - **There are multiple wiring options available:**
    - **Standard Connection with Power Running Through MiniBar:** Connect Power IN and Power OUT with an off-board fuse. Max current: 15 Amps continuous or 25 Amps @ 50% duty cycle. Maximum fuse size: 30 Amps.
    - **Standard Connection with External Fuse at Power**
    - **Source:** Connect Power IN and Power OUT with a jumper wire across fuse terminals. Max current and fuse size same as above.
    - **MiniBar for Crowbar Function Only:** Connect Power IN and Power OUT directly. Use heavy gauge wire if input fuse is large. Do not exceed a fuse size of 40 Amps.

FAQs

- **Q: What is the purpose of the MiniBar 15-16 crowbar circuit?**
  - **A:** The MiniBar is designed to protect electronic equipment from over-voltage damage during power supply failures by tripping at preset voltage levels.
- **Q: How do I select the trip voltage for the MiniBar?**
  - **A:** You can select the trip voltage by soldering jumpers on the board as instructed in the manual.
- **Q: What is the maximum current and fuse size supported by the MiniBar?**
  - **A:** The MiniBar supports a maximum continuous current of 15 Amps and a maximum fuse size of 30 Amps.

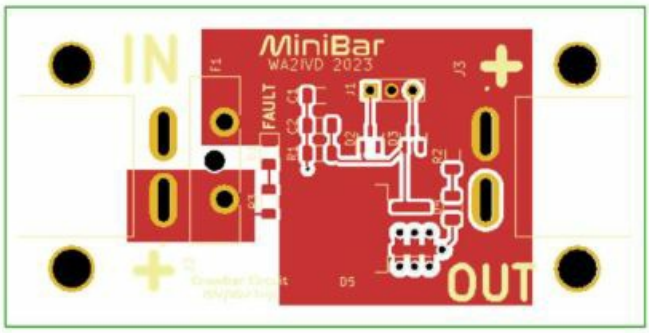
Thank you for purchasing the MiniBar 15-16 Basic Kit crowbar circuit!

Introduction

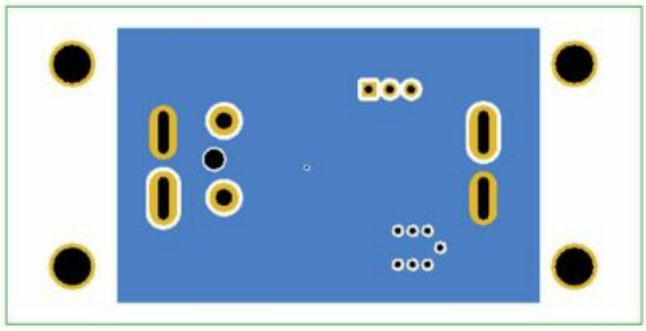
- The MiniBar 15-16 crow-bar circuit is designed to protect electronic equipment from damage because of over-voltage in the event of a power supply failure.
- It is designed for radio and electronic equipment that operates nominally at 13.8 Volts DC.
- The MiniBar 15-16 can be set to trip at 15 volts or 16 volts. The 15-volt seţng is best when operating directly from a 13.8-volt power supply and provides the highest level of protection for electronic equipment.
- The 16-volt seţng can be used when operating from a vehicle 12-volt system or lithium-ion baΣeries while connected to solar or other charging equipment. Some lithium battery charging systems and automated charging systems can operate very close to 15 volts under certain conditions.
- The 16-volt trip seţng provides additional margin against false trips while still providing overvoltage protection for sensitive loads.
- **NOTE:** The actual trip voltage can vary from the nominal based on component tolerances and operating temperature.
    - **15-volt trip:** 14.5 – 15.5 volts actual trip range
    - **16-volt trip:** 15.5 – 16.5 volts actual trip range
- The MiniBar 15-16 includes filtering to suppress noise spikes that might trip the crowbar when it is plugged into a live power source.
- Multiple connection options are possible. The MiniBar can be used with its internal fuse or with a separate external fuse.
- The MiniBar can be connected with power running through it. For higher power applications, it can be used for the crowbar function only with primary power running external to the MiniBar.

Board Layout and Schematic

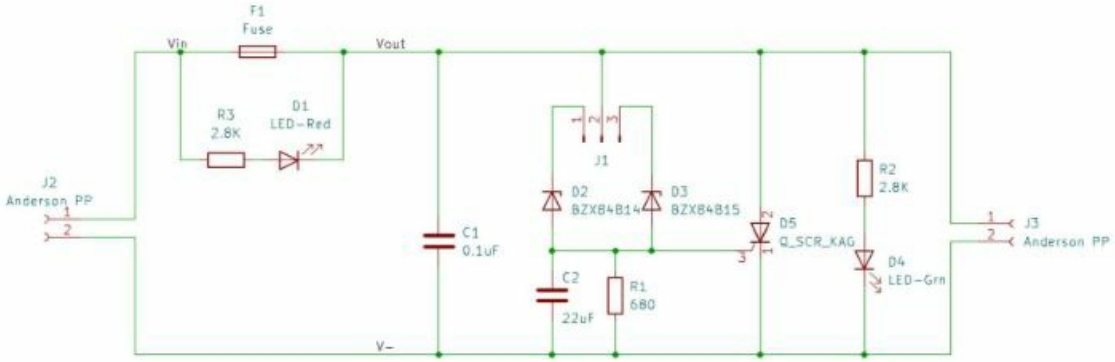
- When wired in its normal configuration, the positive load current goes through the fuse and solid copper planes on the front side of the board.
- Negative load current goes through a solid copper plane on the back side of the board.



PC Board Front side Copper



PC Board Back side Copper (viewed from front)



Schematic

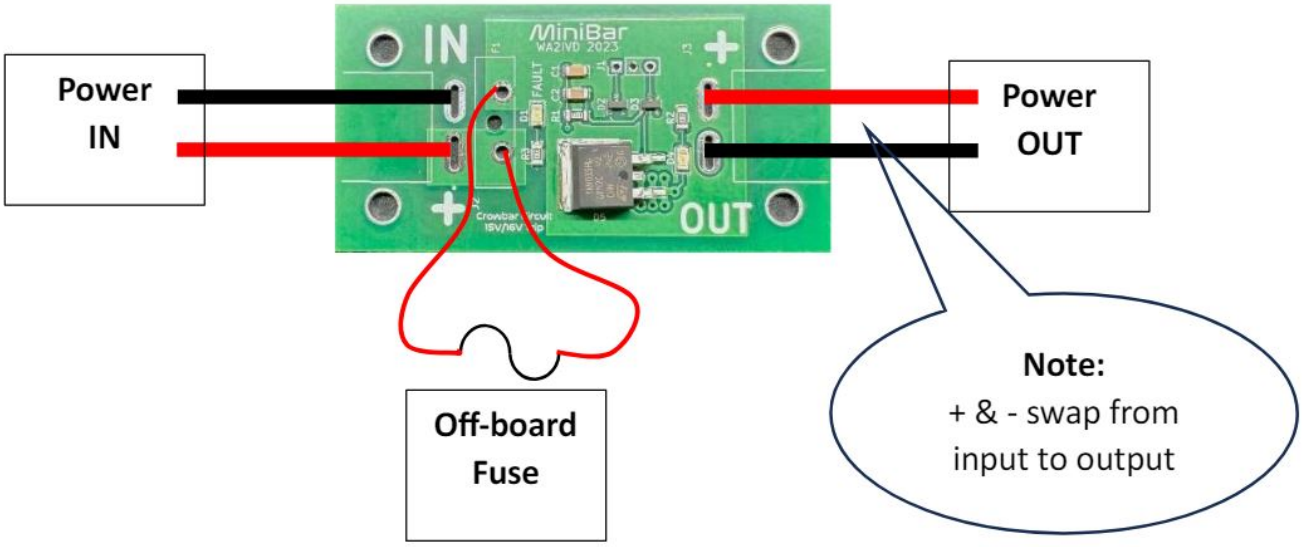
Wiring Options

- For all the wiring options listed on the following pages, you must add a jumper to the board to select the desired trip voltage.
- Solder a Jumper from J1-1 to J1-2 to select 15-volt nominal trip voltage

- Solder a Jumper from J1-2 to J1-3 to select 16-volt nominal trip voltage

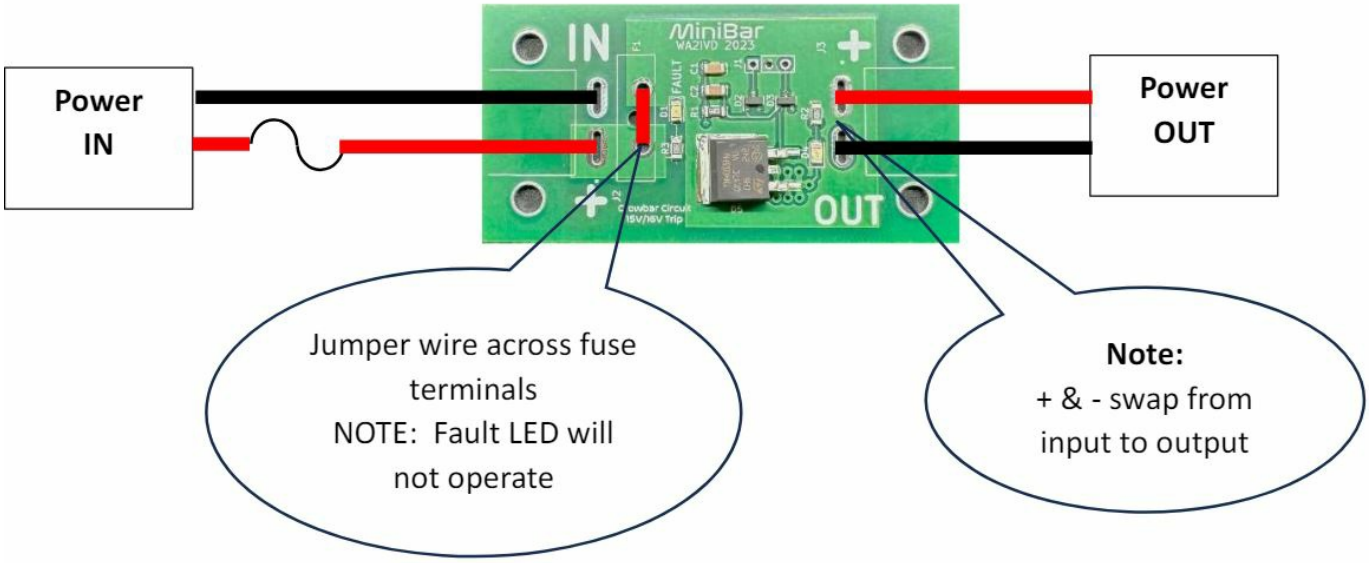
Standard connection

Standard connection with power running through MiniBar



- **NOTE:** Max of 15 Amps ConƟnuous or 25 Amps @ 50% or less duty cycle (30 seconds)
- **Maximum fuse size:** 30 Amps You can also solder a Lielfuse blade fuse holder, or equivalent onto the board and put the fuse on the board.
- **LiΣelfuse p/n:** 178.6164.001 Digi-Key p/n: F5195-ND

Standard connection with external fuse at the power source



- **NOTE:** Max of 15 Amps Continuous or 25 Amps @ 50% or less duty cycle (30 seconds)
- **Maximum fuse size**: 30 Amps

MiniBar for crowbar function only

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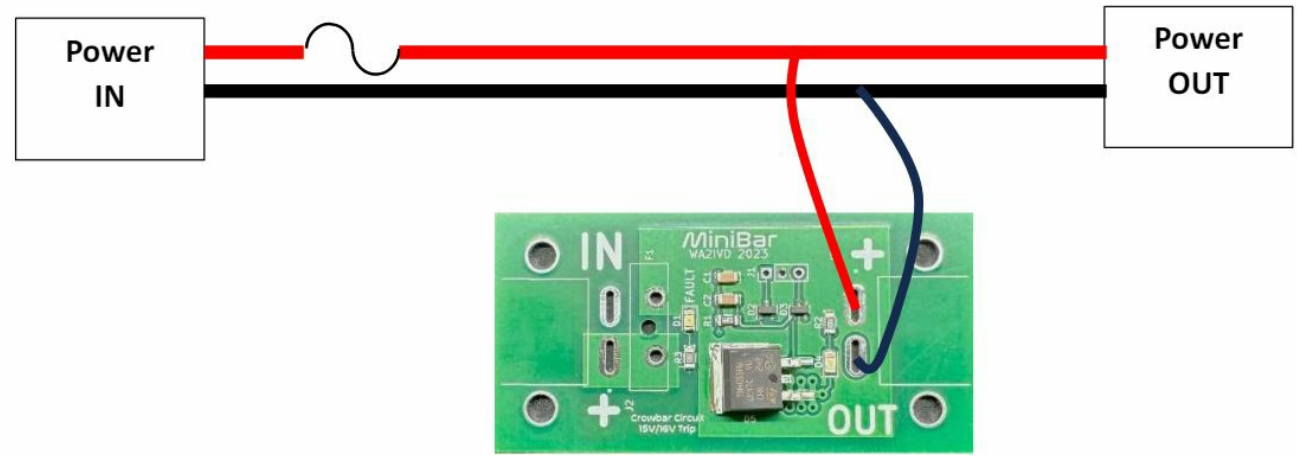

NOTE: Red Fault LED will not operate when the crowbar trips.

- **Important:** Use heavy gauge wire to connect MiniBar to the power circuit if the input fuse is large. The MiniBar may be damaged if fuse sizes larger than 40 Amps are used.
- **CAUTION:** If the Power source cannot supply sufficient current to blow the fuse quickly, the MiniBar may be damaged by sustaining a short circuit across the supply.
- **Designed by:** WA2IVD 2023 A2Z Tech LLC

Documents / Resources

	**MiniBar 15 16 Crowbar Circuit Basic Kit** [pdf] User Manual 15 16 Crowbar Circuit Basic Kit, 15 16, Crowbar Circuit Basic Kit, Circuit Basic Kit, Basic Kit

References

- **User Manual**