



FEDERAL SIGNAL
Safety and Security Systems

**Models 2001TRBP,
2001TRBP-480, and 2001TRBP KIT**
Transformer Rectifier

Description and Specifications Manual

Limited Warranty

This product is subject to and covered by a limited warranty, a copy of which can be found at www.fedsig.com/SSG-Warranty. A copy of this limited warranty can also be obtained by written request to Federal Signal Corporation, 2645 Federal Signal Drive, University Park, IL 60484, email to info@fedsig.com or call +1 708-534-3400.

This limited warranty is in lieu of all other warranties, express or implied, contractual or statutory, including, but not limited to the warranty of merchantability, warranty of fitness for a particular purpose and any warranty against failure of its essential purpose.



FEDERAL SIGNAL Safety and Security Systems

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Safety Messages

▲ WARNING

It is important to follow all instructions shipped with this product. This device is to be installed by trained personnel who are thoroughly familiar with the country electric codes and will follow these guidelines as well as local codes.

Listed below are important safety instructions and precautions you should follow:

Important Notice

Federal Signal reserves the right to make changes to devices and specifications detailed in the manual at any time in order to improve reliability, function or design. The information in this manual has been carefully checked and is believed to be accurate; however, no responsibility is assumed for any inaccuracies.

Publications

Federal Signal recommends the following publications from the Federal Emergency Management Agency for assistance with planning an outdoor warning system:

- The “Outdoor Warning Guide” (CPG 1-17)
- “Civil Preparedness, Principles of Warning” (CPG 1-14)
- FEMA-REP-1, Appendix 3 (Nuclear Plant Guideline)
- FEMA-REP-10 (Nuclear Plant Guideline).

Planning

- If suitable warning equipment is not selected, the installation site for the siren is not selected properly or the siren is not installed properly, it may not produce the intended optimum audible warning. Follow Federal Emergency Management Agency (FEMA) recommendations.
- If sirens are not activated in a timely manner when an emergency condition exists, they cannot provide the intended audible warning. It is imperative that knowledgeable people, who are provided with the necessary information, are available at all times to authorize the activation of the sirens.
- When sirens are used out of doors, people indoors may not be able to hear the warning signals. Separate warning devices or procedures may be needed to effectively warn people indoors.
- The sound output of sirens is capable of causing permanent hearing damage. To prevent excessive exposure, carefully plan siren placement, post warnings, and restrict access to areas near sirens.
- Activating the sirens may not result in people taking the desired actions if those to be warned are not properly trained about the meaning of siren sounds. Siren users should follow FEMA recommendations and instruct those to be warned of correct actions to be taken.

- After installation, service, or maintenance, test the siren system to confirm that it is operating properly. Test the system regularly to confirm that it will be operational in an emergency.
- If future service and operating personnel do not have these instructions to refer to, the siren system may not provide the intended audible warning and service personnel may be exposed to death, permanent hearing loss, or other bodily injury. File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to new recruits and trainees. Also give a copy to anyone who is going to service or repair the siren.

Installation and Service

- Electrocution or severe personal injury can occur when performing various installation and service functions such as making electrical connections, drilling holes, or lifting equipment. Therefore only experienced electricians should install this product in accordance with national, state and any other electrical codes having jurisdiction. Perform all work under the direction of the installation or service crew safety foreman.
- The sound output of sirens is capable of causing permanent hearing damage. To prevent excessive exposure, carefully plan siren placement, post warnings and restrict access to areas near the sirens. Sirens may be operated from remote control points. Whenever possible, disconnect all siren power including batteries before working near the siren.
- After installation or service, test the siren system to confirm that it is operating properly. Test the system regularly to confirm that it will be operational in an emergency.
- If future service personnel do not have these warnings and all other instructions shipped with the equipment to refer to, the siren system may not provide the intended audible warning and service personnel may be exposed to death, permanent hearing loss, or other bodily injury. File these instructions in a safe place and refer to them periodically. Give a copy of these instructions to new recruits and trainees. Also, give a copy to anyone who is going to service or repair the sirens.

Operation

Failure to understand the capabilities and limitations of your siren system could result in permanent hearing loss, other serious injuries or death to persons too close to the sirens when you activate them or to those you need to warn. Carefully read and thoroughly understand all safety notices in this manual and all operations-related items in all instruction manuals shipped with equipment. Thoroughly discuss all contingency plans with those responsible for warning people in your community, company, or jurisdiction.

Read and understand the information contained in this manual before attempting to install or service the siren.

Pay careful attention to the notice located on the equipment.

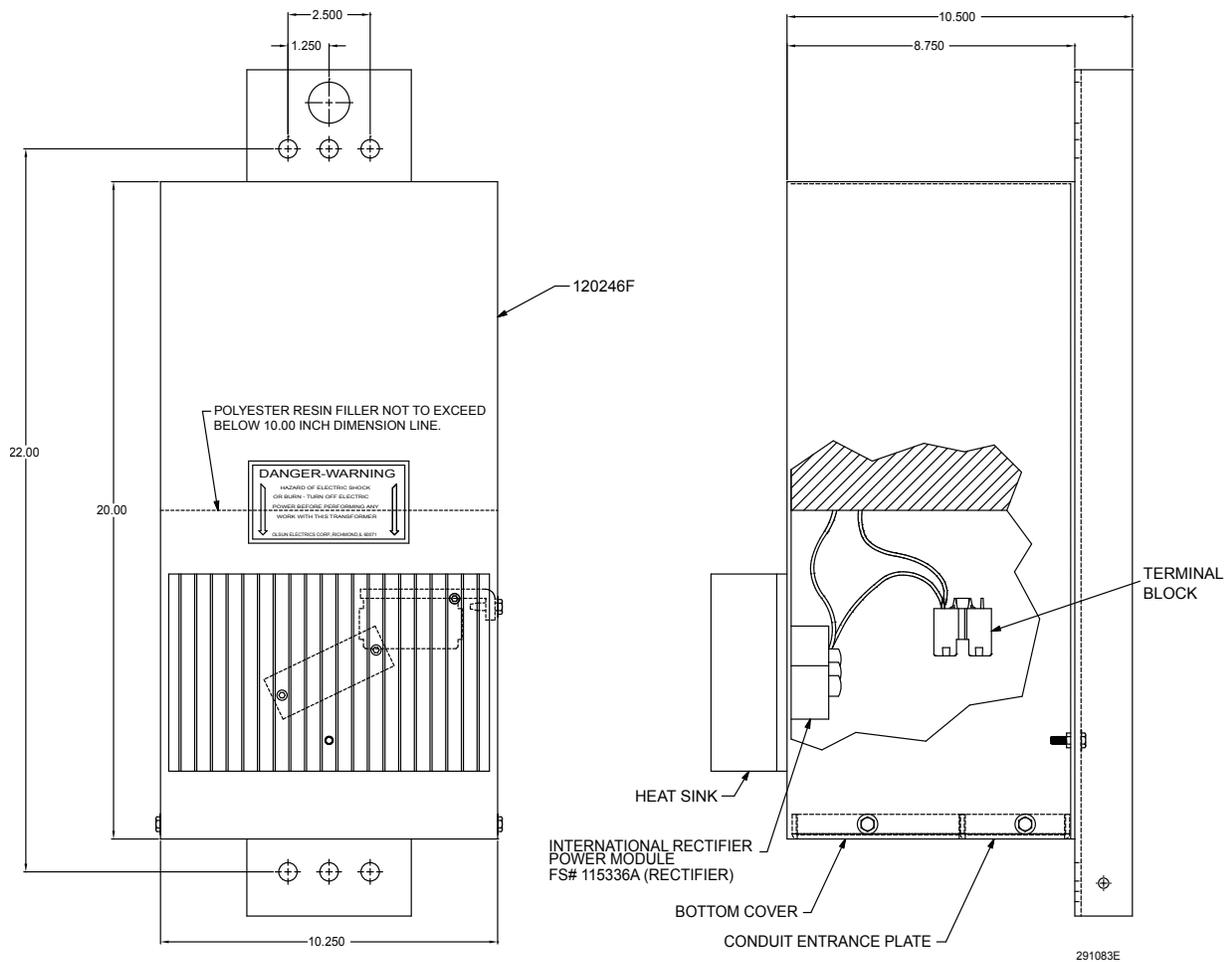
General Description

Overview

The 2001TRBP is a high-power transformer rectifier for powering outdoor warning sirens. The 2001TRBP consists of an aluminum encased transformer with mounting bracket. The 2001TRBP can be used as the only source of power for mechanical sirens (AC operation). The 2001TRBP transformer operates from 208, 220, or 240 Vac, while the 2001TRBP-480 operates from 416, 440, or 480 Vac. The transformer output is 46 Vdc at 130 A and 115 Vac at 10 A. The 46 Vdc is to power the mechanical siren and the 115 Vac is used to power the siren control board, heaters, and chargers, if battery equipped.

The 2001TRBP and 2001TRBP-480 includes a transfer relay contactor kit, which allows primary operation from AC and battery backup when AC fails. The transfer relay kit includes 48 Vdc contactor, buss bars, snubber and screws for attaching contactor to back plate inside Federal Signal Control Cabinet.

Figure 1 Models 2001TRBP and 2001TRBP-480 Transformer Rectifier



Features

The 2001TRBP and 2001TRBP-480 transformer rectifier has the following features.

- High-powered transformer rectifier for powering mechanical sirens from nominal 220 Vac (2001TRBP) or nominal 440 Vac (2001TRBP-480)
- Provides primary system power (46 Vdc) for DC sirens
- Provides 115 Vac for siren controller, chargers, and heaters
- Includes transfer relay contactors (Typically mounted in DCFCB or DCFCTBD cabinets)
- Enclosed in a weather resistant NEMA 3R enclosure

Specifications

Table 1 Electrical Requirements for the Transformer/Rectifier

| | 2001TRBP | 2001TRBP-480 |
|------------------------|--|--|
| Input Voltage | 208/220/240 Vac (+/- 10%), 50-60 Hz, single phase | 416/440/480 Vac (+/- 10%), 50-60 Hz, single phase |
| Input Current | 32/30/27 A | 16/15/13.6 A |
| Output Voltage | 115 Vac at 10 A 46 Vdc at 130 A | 115 Vac at 10 A 46 Vdc at 130 A |
| Input Fusing | 40 A, slow blow max | 40 A, Slow-blow max |
| Continuous Full Output | 30 minutes | |

Table 2 Contactors

| | |
|----------------|------------------|
| Contact Rating | 200 A at 48 Vdc |
| Coil | 48 Vdc, 110 ohms |
| Contact Fusing | 200 A (fast) |

Table 3 Environmental

| | |
|-----------------------|--------------------------------|
| Operating Temperature | 30°C to +65°C / -22°F to 149°F |
| Humidity | 0-98% Non-Condensing |

Table 4 Physical

| | |
|---------------------------|---|
| Dimensions (H x W x D) | 20 inches x 10.25 inches x 8.75 inches 51 cm x 26 cm x 22 cm |
| Weight | 150 pounds (68 kg) |

Unpacking the Kit

Ensure that the parts listed are included in the package. If you are missing any parts, contact Customer Support. See Getting Service.

Table 5 2001TRBP Kit Contents*

| Description | 2001TR Part Number | Service Part Number |
|---------------------|--------------------|---------------------|
| 48 Vdc Contactor | 131A182C | Q131A182C |
| Fused wire | 1461132A | |
| Snubber | 20000216 | |
| Pan Head screw (2) | 7011A069-08 | |
| Brass washer | 70700520 | |
| 2 position buss bar | 8402109A | |
| Buss bar rt angle | 8402138A | |

***NOTE:** The 2001TRBP Kit is for installations that already have an existing transformer.

Table 6 2001TRBP and 2001TRBP-480 Contents

| Description | 2001TRBP includes | 2001TRBP Service Part Number | 2001TRBP-480 includes |
|-----------------------|-------------------|------------------------------|-----------------------|
| Transformer rectifier | 120246F-AL | Q120246F-AL | 120868A |
| 48 Vdc Contactor | 131A182C | Q131A182C | 131A182C |
| Fused wire | 1461132A | | 1461132A |
| Snubber | 20000216 | | 20000216 |
| Pan Head screw (2) | 7011A069-08 | | 7011A069-08 |
| Brass washer | 70700520 | | 70700520 |
| 2 position buss bar | 8402109A | | 8402109A |
| Buss bar rt angle | 8402138A | | 8402138A |
| Diode Rectifier | 115336A | Q115336A | 115336A |

Installation

⚠ DANGER

Electrocution or severe personal injury can occur when making electrical connections, drilling holes, or lifting equipment. Therefore, experienced electricians in accordance with national and local electrical codes, acting under the direction of the installation crew safety foreman, should perform installation.

For electrical connections to controllers, see product manuals (that is, DCFCTBD).

Locating the Transformer

Mount the transformer assembly as close as possible to the control unit to keep cabling distances as short as possible.

See Figure 1 and Table 4 for size and weight of the 2001TRBP transformer. Mount the 2001TRBP to a structure that can support the transformer.

Electrical Connections

⚠ WARNING

Install the siren electrical system in compliance with local electrical codes and NEC recommendations. Federal Signal also recommends that all user-installed conduit connections enter from the bottom of the cabinet. Disconnect all power and read all warnings at the beginning of this manual and before making connections.

Figure 2 Schematic Diagram 2001TRBP

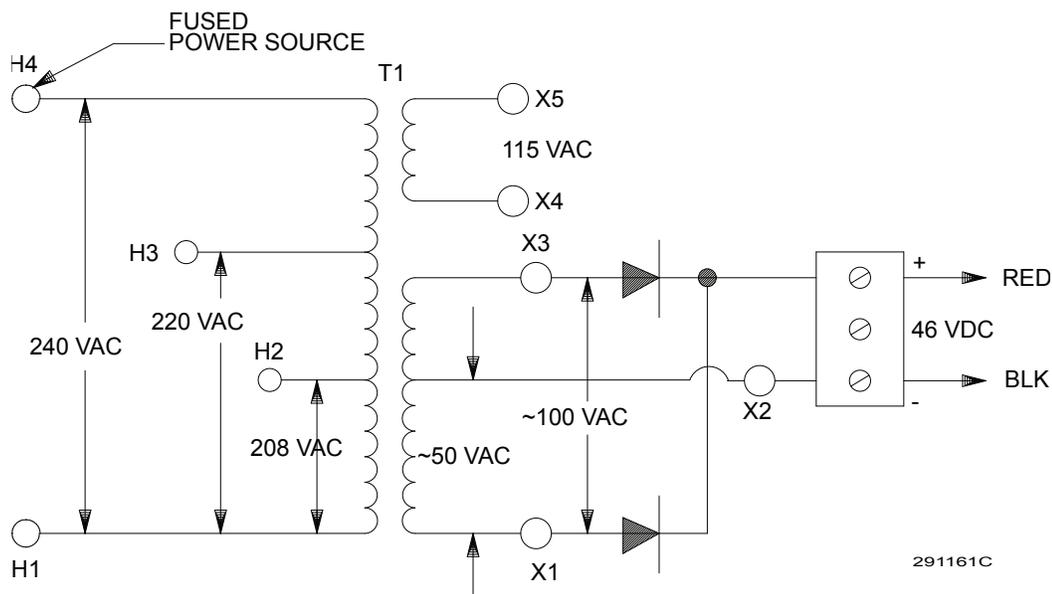


Figure 3 Schematic Diagram 2001TRBP-480

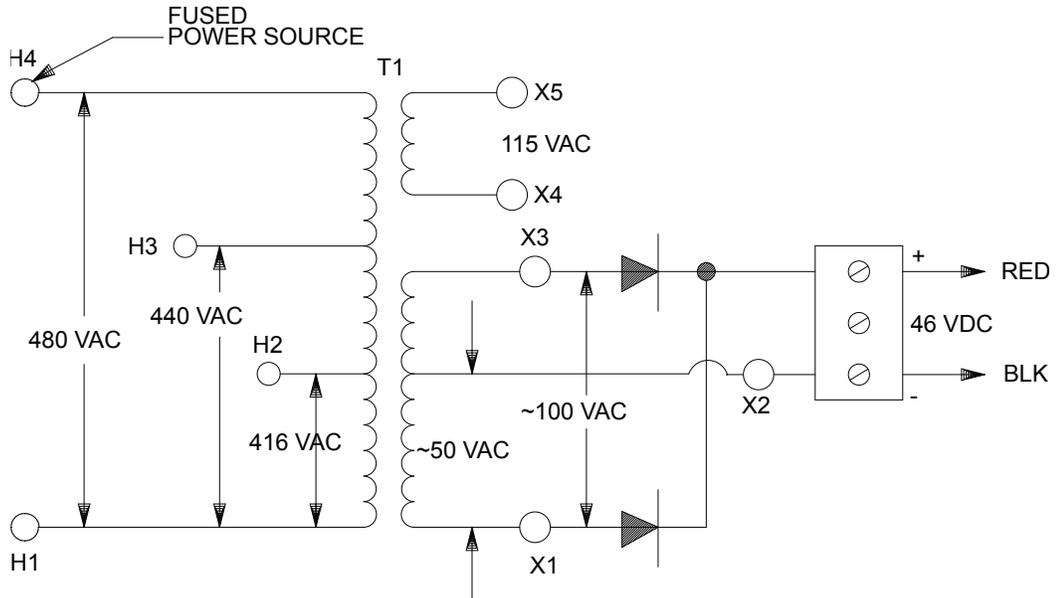
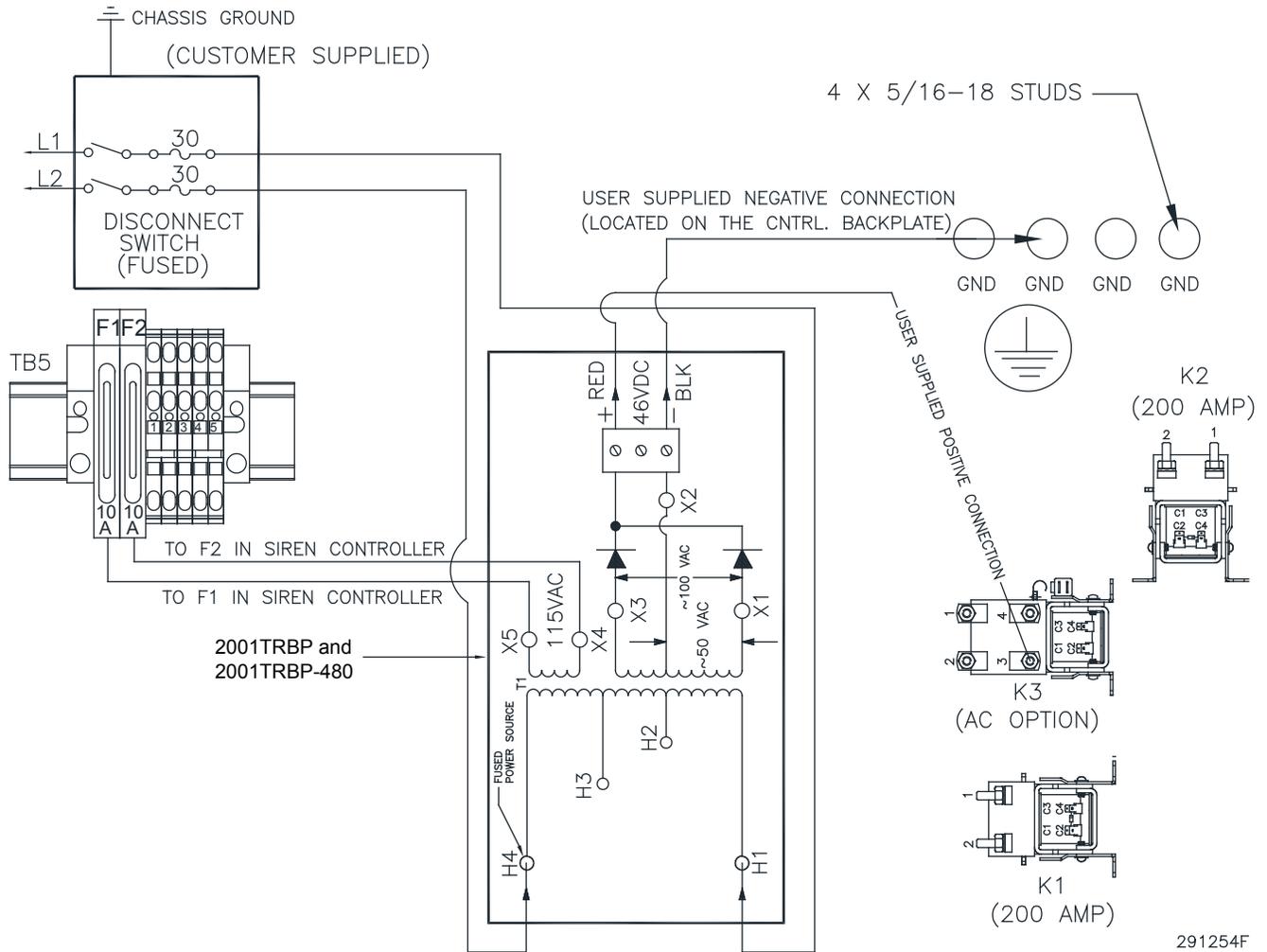


Figure 4 Transformer Rectifier Wiring to Control Cabinet



Troubleshooting

NOTE: It is normal for the 46 Vdc output of the transformer to have 20-30 Vrms of AC ripple without load. With load the AC ripple significantly decreases.

If the 46 Vdc output of the transformer is about half of 46 Vdc, typical cause is a defective Diode Rectifier or Transformer. Lightning or a power surge may have damaged the Diode Rectifier or Transformer.

1. Turn off AC power to the transformer. Verify AC power has been turned off.
2. Disconnect wires X1 and X3 from the Diode Rectifier and carefully protect the wires from shorting.
3. Connect voltmeter to X1 and X3. Turn on AC power and measure X1 and X3. Should measure about 100 Vac.
4. Turn off AC power to the transformer. Verify AC power has been turned off.
5. Connect voltmeter to X1 and X2. Turn on AC power and measure X1 and X2. Should measure about 50 Vac.
6. Turn off AC power to the transformer. Verify AC power has been turned off.
7. Connect voltmeter to X3 and X2. Turn on AC power and measure X3 and X2. Should measure about 50 Vac.

If the voltages above are incorrect, the entire transformer part number Q120246F-AL, will need to be replaced.

If the voltages above are correct, the Diode Rectifier part number Q115336A, will need to be replaced.

Getting Service

If you are experiencing any difficulties, contact Federal Signal Customer Care at: 800-548-7229 or 708-534-3400 extension 7511 or Technical Support at: 800-524-3021 or 708-534-3400 extension 7329 or through e-mail at: techsupport@fedsig.com. For instruction manuals and information on related products, visit: <http://www.fedsig.com/>



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