8500–00 30Hz Ringing Generator

CONTENTS PAGE

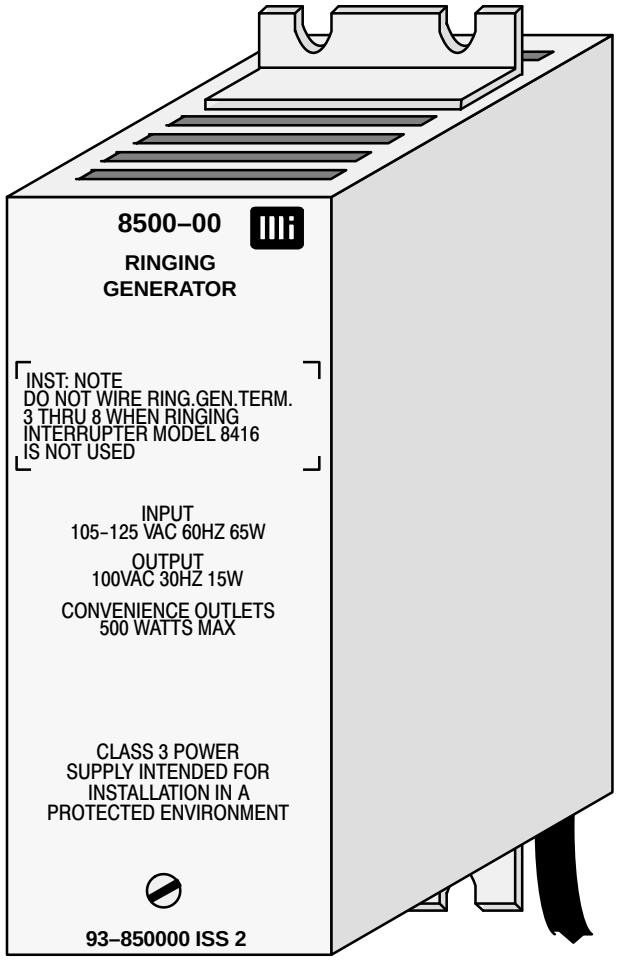

Figure 1. 8500–00 Ringing Generator

1. GENERAL

1.1 Document Purpose

This document provides a circuit description, installation, and basic testing information for the Charles Industries 8500–00 Ringing Generator, shown in Figure 1.

1.2 Document Status

This document is reprinted to include a general editorial update.

1.3 Equipment Function

The 8500–00 Ringing Generator is a compact KTU-mounted unit intended for use where a 100Vac, 30Hz ringing generator is required. The 8500–00 requires a nominal 120Vac, 60Hz, single-phase input.

1.4 Equipment Location/Mounting

Mounts in a KTU apparatus case or relay rack.

2. INSPECTION

2.1 Inspect for Damages

Inspect the equipment thoroughly upon delivery. If the equipment has been damaged in transit, immediately report the extent of damage to the transportation company.

2.2 Equipment Identification

Charles Industries' equipment is identified by a model and issue number imprinted on the front panel or located elsewhere on the equipment. Each time a major engineering design change is made on the equipment, the issue number is advanced by 1 and imprinted on subsequent units manufactured. Therefore, be sure to include both the model number and its issue number when making inquiries about the equipment.

2.3 Static Concerns

Each module is shipped in static-protective packaging to prevent electrostatic charges from damaging static-sensitive devices. Use approved static-preventive measures, such as static-conductive wrist straps and a static-dissipative mat, when handling modules outside of their protective packaging. A module intended for future use should be tested as soon as possible and returned to its original protective packaging for storage.

CAUTION

Do not ship or store modules near strong electrostatic, electromagnetic, or magnetic fields. Use the original static-protective packaging for shipping or storage.

3. APPLICATION GUIDELINES

The 8500–00 Ringing Generator can be used in ringing applications that do not exceed 15 watts. A 10 foot SJT power cord is supplied for connecting to a grounded 105Vac to 125Vac, 60Hz receptacle. The 8500–00 is also equipped with two receptacles for supplying 120Vac, single phase (non-fused) output to external equipment. Use of these should not exceed a total of 5a.

The 8500–00, as received from the factory, is equipped with a plug-in Interrupter Bypass Subassembly. Thus equipped, the 8500–00 provides a constant ringing generator output. In applications where interrupted ringing (2 seconds on, 4 seconds off) is a requirement, the Interrupter Bypass Subassembly may be replaced with an 8416–00 Interrupter Subassembly. When using the 8416–00, refer to Section 841–600–202.

4. CIRCUIT DESCRIPTION

Refer to Figure 2, the 8500–00 schematic diagram, while reading the following description.

The 120Vac input is routed through the power cord an fuse F1 to the magnetic frequency converter (transfluxor) which is comprised of T2, R1, and C8. The transfluxor converts the incoming 120Vac 60Hz input voltage into a 100Vac 30Hz output voltage.

The 8500–00 comes equipped with an INTERRUPTER BYPASS subassembly (A81–000014) which causes a continuous ringing output. Should interrupted ringing be required, the bypass subassembly is replaced by an 8416–00 INTERRUPTER circuit card.

Use of the 8416–00 causes the ringing output to be pulsed at a rate of 2-seconds on and 4-seconds off. The 8416–00 also monitors the output voltage and signals an alarm condition if the output ceases for more than 10 seconds. Under normal operating conditions, a short will be seen across TB1–3 and TB1–4. In an alarm condition, these terminals will open. Placing 24Vdc on TB1–7 and TB1–8 (positive on 7 and negative on 8) will turn off the output. Placing a short across TB1–5 and TB1–6 causes continuous ringing voltage at the output. If an INTERRUPTER BYPASS circuit card is used, TB1 pins 3 through 8 are rendered inactive.

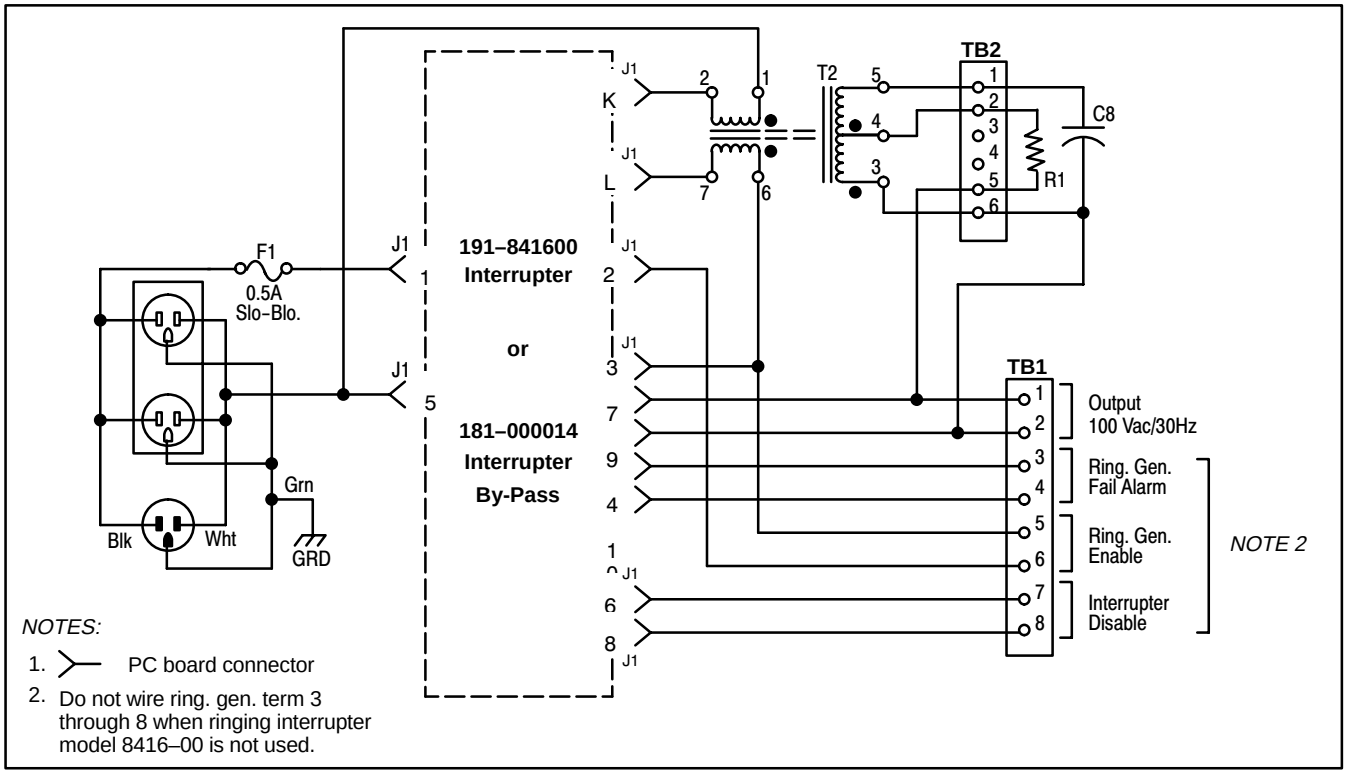

Figure 2. 8500–00 Schematic Diagram

5. MOUNTING

The 8500–00 may be mounted either in a Charles Industries 14A, 15A or 16C KTU apparatus case, or when installed with mounting bars, on a 19- or 23-inch relay rack. When installed on a relay rack, 7 inches of vertical rack space is required.

Install the 8500–00 in a KTU apparatus case with the mounting hardware provided. When installing a 19-inch relay rack, use the 8923–19 Mounting Kit, and for a 23-inch relay rack, use the 8923–23 Mounting Kit.

6. INSTALLER CONNECTIONS

All installer connections (except the line cord) are made to the screw-down terminal strip on the rear of the 8500–00. Make these connections in accordance with Figure 3. Replace the barrier strip covers after making the necessary connections.

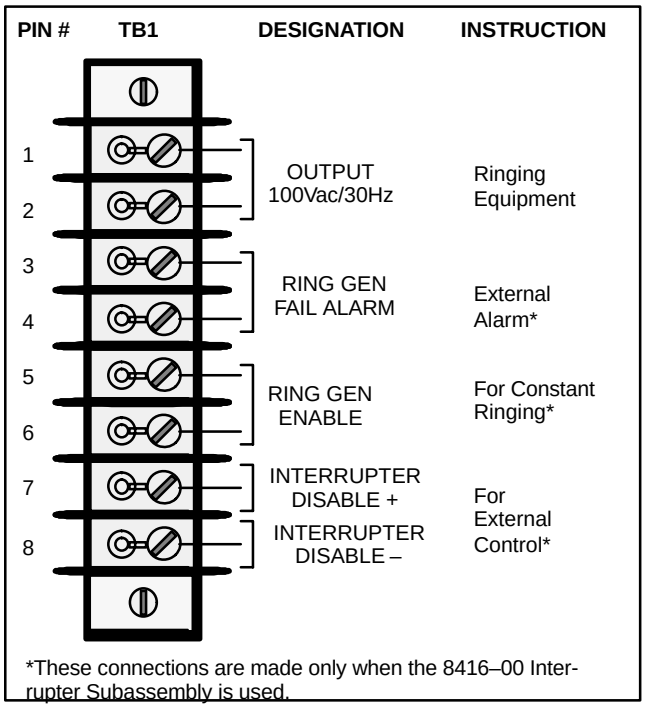

Figure 3. 8500–00 Installer Connections

CAUTION

Remove power from the unit before making any installer connections.

Either output terminal 1 or 2 can be connected to ground or to negative battery potential if grounded or biased ringing is required.

Do not operate the 8500–00 on primary current other than 60Hz AC.

When installing the 8416–00, refer to Section 841–600–202. Identify an 8500–00 as being equipped with an 8416–00 by placing the supplied label on the back of the power unit at the time of installing the 8416–00. This label is included with the 8416–00 when shipped.

7. TESTING

If trouble is encountered with the 8500–00 step through the following test procedure. A SIMPSON 260 Multimeter (or equivalent) is required. Be sure to remove power from the unit before making or removing any connections at the terminal strip.

CAUTION

Primary power for the 8500–00 is not isolated from the 120Vac line. Use an isolation transformer between the 120Vac and the 8500–00 any time testing is performed while cover is removed.

Step	Action	Result
1.	Install a strap between terminals 5 and 6 of output term strip (not necessary if 8500–00 is equipped with Bypass Subassembly).	
2.	Connect the power cord to a source of 120Vac 60Hz. Measure the voltage across terminals 1 and 2 of output terminal strip.	Reading should be 80 to 140Vac (no load).
3.	Change to low ohms scale and measure resistance between terminals 3 and 4.	Reading should be 0 ohms.

Step	Action	Result
4.	Remove power source and remove strap installed between terminals 5 and 6.	
5.	Restore power and again measure output voltage at terminals 1 and 2.	Reading should be 80Vac to 140Vac interrupted at a rate of 2 seconds on and 4 seconds off.
6.	While monitoring terminals 1 and 2 for interrupted output, apply 24Vdc to terminals 7(+) and 8(–).	Verify that output ceases (external control test).
7.	Remove power and install a strap between terminals 1 and 2. Place ohm meter between terminals 3 and 4. Apply power.	Verify meter reading of 0 ohms for approximately 10 seconds followed by open circuit.
8.	Remove strap from terminals 1 and 2. This completes the testing procedure.	

8. TECHNICAL ASSISTANCE

If technical assistance is required, contact Charles Industries' Technical Services Center at:

847–806–8500
847–806–8556 (FAX)
800–607–8500
techserv@charlesindustries.com (e-mail)

9. WARRANTY & CUSTOMER SERVICE

9.1 Warranty

Charles Industries, Ltd. offers an industry-leading, 5-year warranty on products manufactured by Charles Industries. Contact your local Sales Representative at the address or telephone numbers below for warranty details. The warranty provisions are subject to change without notice. The terms and conditions applicable to any specific sale of product shall be defined in the resulting sales contract.

Charles Industries, Ltd.
5600 Apollo Drive
Rolling Meadows, Illinois 60008–4049
847–806–6300 (Main Office)
847–806–6231 (FAX)

9.2 Field Repairs (In-Warranty Units)

Field repairs involving the replacement of components within a unit are not recommended and may void the warranty and compatibility with any applicable regulatory or agency requirements. If a unit needs repair, contact Charles Industries, Ltd. for replacement or repair instructions, or follow the *Repair Service Procedure* below.

9.3 Advanced Replacement Service (In-Warranty Units)

Charles Industries, Ltd. offers an "advanced replacement" service if a replacement unit is required as soon as possible. With this service, the unit will be shipped in the fastest manner consistent with the urgency of the situation. In most cases, there are no charges for in-warranty repairs, except for the transportation charges of the unit and for a testing and handling charge for units returned with no trouble found. Upon receipt of the advanced replacement unit, return the out-of-service unit in the carton in which the replacement was shipped, using the preaddressed shipping label provided. Call your customer service representative at the telephone number above for more details.

9.4 Standard Repair and Replacement Service (Both In-Warranty and Out-Of-Warranty Units)

Charles Industries, Ltd. offers a standard repair or exchange service for units either in- or out-of-warranty. With this service, units may be shipped to Charles Industries for either repair and quality testing or exchanged for a replacement unit, as determined by Charles Industries. Follow the *Repair Service Procedure* below to return units

and to secure a repair or replacement. A handling charge applies for equipment returned with no trouble found. To obtain more details of this service and a schedule of prices, contact the CI Service Center at 217–932–5288 (FAX 217–932–2943).

Repair Service Procedure

1. Prepare, complete, and enclose a purchase order in the box with the equipment to be returned.

2. Include the following information:

   – Company name and address
   – Contact name and phone number
   – Inventory of equipment being shipped
   – Particulars as to the nature of the failure
   – Return shipping address

3. Ship the equipment, purchase order, and above-listed information, transportation prepaid, to the service center address shown below.

   CI Service Center
   Route 40 East
   Casey, IL 62420–2054

4. Most repaired or replaced units will be returned within 30 or 45 days, depending on the product type and availability of repair parts. Repaired units are warranted for either 90 days from the date of repair or for the remaining unexpired portion of the original warranty, whichever is longer.

10. SPECIFICATIONS

10.1 Electrical

The electrical characteristics of the 8500–00 are as follows:

(a) INPUT: 105Vac to 125Vac, 60Hz, single-phase.

(b) INPUT CURRENT: 0.5A maximum.

(c) RINGING GENERATOR OUTPUT: 100Vac, 30Hz, 15W.

(d) RINGING GENERATOR REGULATION: 80 to 140Vac.

(e) FUSING: An ac line input; 0.5A, slow-blow.

(f) CONVENIENCE OUTLETS: 5A total maximum.

(g) ALARM CIRCUIT: Relay opens when no line voltage is present or when ringing generator output ceases.

10.2 Physical

The physical characteristics of the 8500–00 are shown in Table 1.

Table 1. Physical Specifications

Feature	U.S.	Metric
Height (with mounting bracket)	5.875 inches (6.875 inches)	14.92 centimeters (17.46 centimeters)
Width	2.875 inches	7.30 centimeters
Depth	7.5 inches	19.05 centimeters
Weight	5.5 lbs.	12.1 kg
Temperature	32–131°F	0–55°C
Line Cord	10 feet, SJT Type, 16AWG, 3 conductor