8505–40 Sine Wave Ring Generator (10 Watt, 20Hz)

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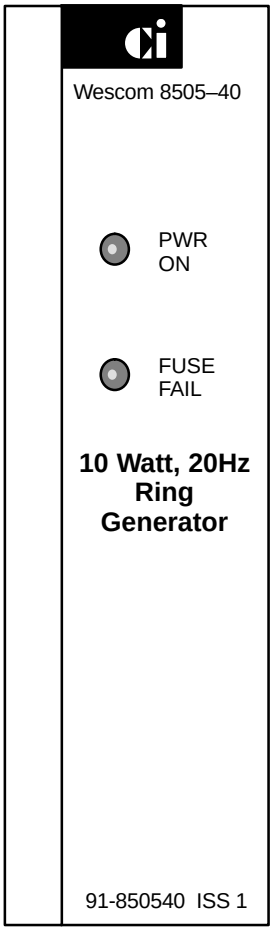

Figure 1. 8505–40 Ring Generator

1. GENERAL

1.1 Document Purpose

This document provides general, installation and testing information for the Charles 8505–40 10 Watt 20Hz Ring Generator, shown in Figure 1.

1.2 Document Status

This document is reprinted to include a general editorial update.

1.3 Equipment Function

The Charles 8505–40 10 Watt 20Hz Ring Generator is a 400-type plug-in ring generator for use in station packages where 10 watt, 20Hz sine wave output is required.

1.4 Equipment Location/Mounting

The 8505–40 is a 400-type plug-in module designed to mount in one position of a wired or unwired 400–type mounting assembly.

1.5 Equipment Features

The 8505–40 features include the following:

- Switch selectable continuous or externally controlled ring output
- Internal –48V ringing bias
- Industry standard 400-type mechanics
- Self-resetting output short circuit protection
- Power-on LED indicator
- Fuse fail LED indicator

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.

STATIC-SENSITIVE

This equipment contains static-sensitive electronic devices. To prevent electrostatic charges from damaging static-sensitive units:

- **Use approved static preventive measures (such as a static-conductive wrist strap and a static-dissipative mat) at all times whenever touching units outside of their original, shipped static-protective packaging.**
- **Do not ship or store units near strong electrostatic, electromagnetic, or magnetic fields.**
- **Use static-protective packaging for shipping or storage.**

3. CIRCUIT DESCRIPTION

Refer to Figure 2, the 8505–40 Block Diagram, while reading the following circuit description.

The 8505–40 Ring Generator operates from a –48Vdc (nominal) source input on edge connector pins 35 (–48) and 17 (GND). When power is applied to the module, the green front panel LED labeled PWR ON will be on. The 8505–40 contains an internal PCB mounted fuse in the input line. This fuse will open only if the unit experiences an internal failure; consequently it is not field replaceable. If the internal fuse opens, the front panel red FUSE FAIL LED will light.

The –48v input is stepped up by the DC–DC converter and routed to the output driver circuit. The output driver modulates the output at 20Hz and superimposes a –48V bias on the output.

The output of the 8505–40 is protected from overload and shorted outputs by the overload protector circuit.

The Ring Generator may be externally controlled (enabled) via a ground on pin 30. It may also be continuously enabled. The operational mode is selected via PCB–mounted switch S1.

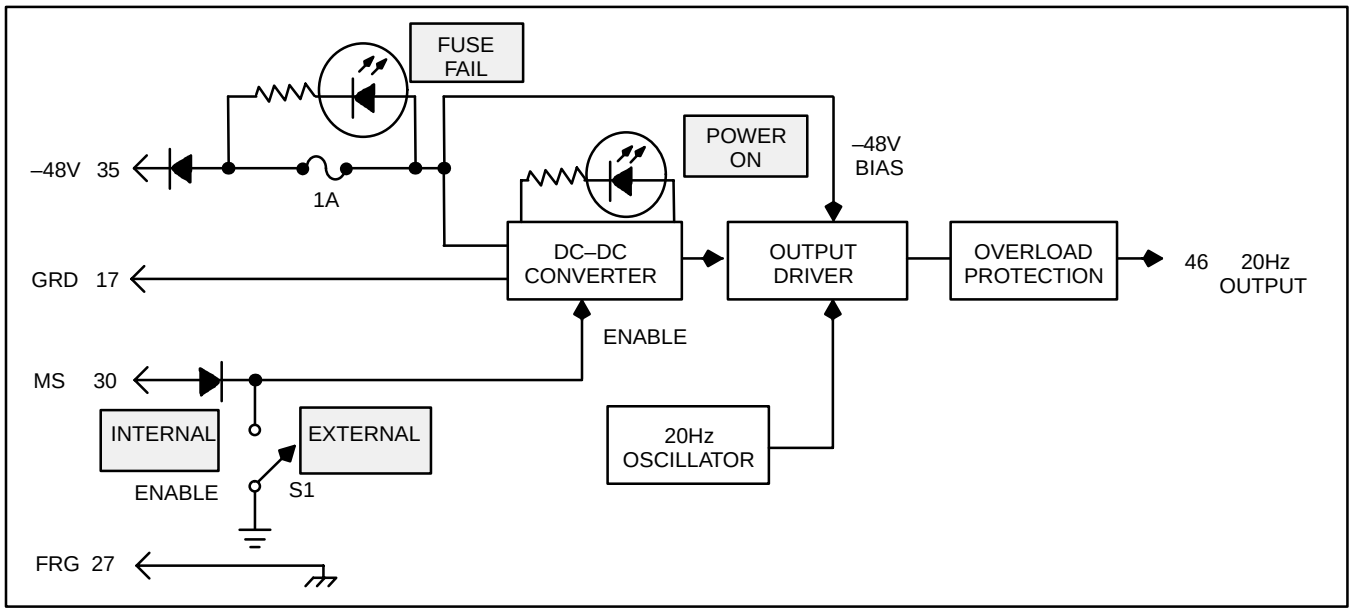

Figure 2. 8505–40 Ring Generator Block Diagram

4. MOUNTING

The 8505–40 is a 400-type plug-in ring generator specifically designed to be used with Charles' MA–, MD–, or MU–4012 and MA–, MD–, or MU–4006 mounting assemblies. Other 400-type assemblies may be used if pin compatible with the 8505–40. See Figure 2.

CAUTION

Installation and removal of modules should be done with care. Do not force the card into place. If excessive resistance is encountered while installing a module, remove it, and check the card guides and connector to verify proper alignment and the absence of foreign material.

5. INSTALLER CONNECTIONS

The 8505–40 makes electrical connections to associated equipment through a 56-pin card-edge connector. When the 8505–40 is installed in a prewired Wescom package, no installer connections are necessary. If an unwired mounting is used, make all installer connections in accordance with Table 1.

Table 1. 8505–40 Installer Connections

Lead Designation	Pin
Ring Generator Output	46
MS Enable	30
–48Vdc Input	35
–48V Return (Ground)	17
Frame Ground	27

6. OPTIONS

6.1 S1 – Machine Start (MS ENABLE)

If the Ring Generator is to be externally controlled via a ground input on pin 30, place S1 in the EXTERNAL position. For continuous ringing output, place S1 in the INTERNAL position.

7. TESTING

When the 8505–40 is installed in a proper mounting position, verify that the front-panel POWER LED (green) is lit and the FUSE FAIL LED (red) is not lit.

If trouble is encountered with the operation of the 8505–40, verify that it is making proper connection to the card-edge connector. Remove and reinsert the 8505–40. If technical assistance is required, contact Charles Industries, Ltd. Customer Services Department at:

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
   503 N.E. 15th St., P.O. Box 339
   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

The electrical and physical characteristics of the 8505–40 are as follows:

10.1 Electrical

(a) INPUT VOLTAGE: –48Vdc nominal (–42 to –60Vdc range).

(b) INPUT CURRENT: Idle, 18mA; no load, 120mA; 10 watt load, 600mA; overload, 1.0A maximum.

(c) OUTPUT PROTECTION: Current limiting circuitry protects the output from short circuits and current overloads; self-recovering when overload is removed.

(d) OUTPUT VOLTAGE: 84 volts minimum RMS with 10 watt load.

(e) OUTPUT POLARITY: Superimposed –48V bias.

(f) OUTPUT FREQUENCY: 20 ±1Hz.

(g) OUTPUT POWER: 10 watts minimum.

10.2 Physical

See Table 2 for the physical characteristics of the unit.

Table 2. Physical Specifications

Feature	U.S.	Metric
Height	5.6 inches	14.2 centimeters
Width	1.4 inches	3.5 centimeters
Depth	6.0 inches	15.2 centimeters
Weight	9.2 ounces	262.2 grams
Temperature	32° to 131°F	0° to 55°C