INTEGRITY SERIES® 100 WATT AUDIO POWER AMPLIFIER

Model APH-1100

DESCRIPTION AND APPLICATION

The STROMBERG-CARLSON Model APH-1100 Amplifier is a high quality, bridging type, 100 watt, audio power amplifier of compact design for 19" rack mount and requires only four (4) panel spaces (7"). No adapter shelves are needed. It is designed for continuous duty and incorporates a number of unique features consistent with the continuing leadership of STROMBERG-CARLSON in the field of audio communication.

The Model APH-1100 Amplifier meets the exceptionally stringent specification requirements for specialized applications. Frequency respone is 8-45,000 cps ± 1.0 db. Total harmonic distortion is less than 2%, 40-20,000 cps at 80 watts output.

For heavy duty public address, music distribution, sound reinforcement, and general communication applications, this Amplifier will provide 100 watts of power with less than 5% total harmonic distortion over the frequency range of 50-15,000 cps.

Vertical mounting of the Amplifier eliminates heat traps and allows unrestricted convection air cooling of the tubes and surface components.

The underside of the chassis faces the front of the rack, and all under-chassis wiring and components are easily accessible by removal of the cover plate for convenience of test and service functions, without removing the Amplifier from service.

A completely separate rectifier circuit is employed to furnish screen potential to the output tubes resulting in increased efficiency, improved regulation and lower distortion.

All controls are top-of-chassis and easily accessible, yet semi-concealed when rack mounted to prevent unauthorized changes once the controls have been pre-set for desired system performance. For quick and easy installation or maintenance top-of-chassis test points are provided for adjustment of output balance and bias controls. No need to probe the under-chassis wiring or seek out test point locations.

- **Continuous Duty Design**
- **Wide Range Frequency Response**
- **Low Distortion and Noise**
- **Excellent Output Regulation**
- **Top of Chassis Test Points**
- **Solid State Rectifiers (Silicon)**
- **Bridging Type, Rack Mounting**
- **70 and 25 Volt Balanced Output**
- **Screw Terminal Input and Output Connections**
- **Compact**
- **Listed by Underwriters' Laboratories Re-examination Service**

ADDITIONAL FEATURES

- **Plug-in Input Transformer**
- **Plug-in Standby Relay**
- **High Pass Filter**
- **115 Volt Audio Output**

Stromberg-Carlson
A SUBSIDIARY OF GENERAL DYNAMICS CORPORATION

POWER AMPLIFIERS

The input is versatile and can be converted from 250,000 ohms unbalanced to 10,000 ohms balanced bridging input for low level (O DBM) lines, which are frequently used for extensive signal distribution systems, or in those applications where the power amplifier may be located remotely from the mixer-preamplifier. The Model TB-1011 Input Transformer Plug-in Bridging Type with 8 pin octal base is an optional accessory for this conversion.

A 1.0 volt signal input will drive the amplifier to rated output. The input circuit incorporates a continuously variable attenuator.

Excellent regulation and exceptional stability is accomplished with a feedback circuit, utilizing a tertiary winding in the output transformer, isolated from the balanced line constant voltage output. The convenient top-of-chassis high-pass filter switch provides protection for horn loaded drivers by sharp attenuation of frequencies below 250 cps.

The Model APH-1100 Amplifier has been designed primarily for sound system applications using constant voltage balanced lines with 25 or 70 volts. A plus feature of this Amplifier is the 115 volt output for special applications. In conjunction with a signal generator, the APH-1100 Amplifier will serve as a variable frequency power source for test equipment and control devices.

For applications requiring quick and easy access to front and back of the Amplifier, a Model SC-1102 Hinge Assembly may be used. This hinge replaces the right hand rack mount flange, and allows the Amplifier to swing out without disconnecting the unit from the system.

An optional dress-up blank panel with opening for pilot light, Model SCP-1101, is available for those applications where the Amplifier is mounted in the front of the rack.

ARCHITECT-ENGINEERS' SPECIFICATIONS

The power amplifier shall be a STROMBERG-CARLSON Model APH-1100 bridging type or approved equal. The Amplifier shall not occupy more than four (4) panel spaces (7") and shall include a pilot light, fuse holder, AC "On-Off" switch, level control, high-pass filter switch for 250 cps cutoff, bias control, DC balance control and top of chassis test points. All controls shall be behind the panel and front panel controls shall not be acceptable.

The power output shall be 100 watts with less than 5% total harmonic distortion over the frequency range of 50-15,000 cycles per second, and 80 watts with less than 2% total harmonic distortion over the frequency range of 40-20,000 cycles per second. The frequency response shall be ± 1 db from 8-45,000 cycles, and ± 3 db from 7-100,000 cycles. The overall gain shall not be less than 74 db (based on 250,000 ohms). The noise level shall be 80 db below rated output. The input sensitivity shall be 1.0 volt RMS for rated output. The input impedance shall be 250,000 ohms, or 10,000 ohms balanced line C.T. with input bridging transformer Model TB-1011. The output shall be 25 and 70 volts ungrounded with center tap and 115 volts unbalanced. The regulation shall be 2 db no load to full load.

The Amplifier shall employ a completely separate rectifier circuit to supply screen potential to the output tubes.

The tube complement shall consist of one Type 7199 and two Type SC 1000. The use of tubes not specifically designed for audio use shall be deemed unacceptable. The rectifiers shall be solid state silicon type, and consist of two 1N3196, two 1N3195 and one 1N1763 diodes.

The use of vacuum tube rectifiers with their consequent generation of heat shall be deemed unacceptable.

The constant voltage output circuit shall be completely isolated from the negative feedback circuit permitting balanced line constant voltage output. Any power amplifier having grounded constant voltage output, or other methods of negative feedback, shall not be acceptable.

The Amplifier shall operate from 117-125 volts, 50-60 cps and shall draw no more than 175 watts from the AC supply line when delivering rated audio output under program level conditions, nor more than 44 watts when in standby. The Amplifier shall be listed by the Underwriters' Laboratories Re-examination Service.

The Amplifier shall incorporate sockets for optional plug-in bridging input transformer TB-1011 and optional standby relay, Model RS-1012. The amplifier shall swing out for complete access to top and underside of chassis from front of rack with installation of optional front servicing hinge, Model SC-1102.

SPECIFICATIONS

Power Output:
100 watts at less than 5% THD 50-15,000 cps.
80 watts at less than 2% THD 40-20,000 cps.

Regulation: 2 db, no load to full load.

Gain: 74 db based on 250,000 ohms.

Input Sensitivity: 1.0 volt RMS for rated output.

Input Impedance: 250,000 ohms or 10,000 ohms balanced line C.T. with optional bridging input transformer TB-1011.

Output Terminals: Constant voltage, 25 and 70 volts ungrounded with C.T. and 115 volts.

Noise Level: 80 db below rated output.

Frequency Response:
±1 db 8-45,000 cps.
±3 db 7-100,000 cps.

Controls: Input level control, continuously variable; AC power, "On-Off" switch; High-pass filter switch for protection of horn loaded drivers, 250 cps cut-off; Bias adjust control; DC balance control.

Power Consumption: 175 watts; Standby, 44 watts.

Power Source: 117-125 AC, 50-60 cps.

Tubes: 1 - 7199; 2 - SC 1000.

Rectifiers: Solid state, 2 - 1N3196; 2 - 1N3195; 1 - 1N1763 diodes (silicon).

Fuses: 1 - AC Primary.

Terminals: Input, screw type; Output, barrier screw type.

Finish: Cadmium plated.

Size: 17 5/16" L, 5 1/4" H (with feet), 6 3/4" W (feet 3/8", detachable).
19" overall length with rack mount flanges attached.
4 panel spaces (7") required when rack mounted.

Shipping Weight: 26 lbs.

Special Features: Amplifier mounts vertically in rack providing access to underside of chassis from front of rack. Front servicing hinge allows amplifier to swing out providing access to top and underside of chassis from front of rack. Separate rectifier circuit for output tube screen grid potential. Plug-in input transformer for bridging input. Plug-in standby relay 115 volt audio output for use as a variable frequency power supply and other special application.

NOTE: Performance ratings are in accordance with EIA standards SE-101A.

ASSOCIATED EQUIPMENT: SCP-1003 or SCP-1006 Preamplifier.

OPTIONAL ACCESSORY EQUIPMENT:
Model TB-1011 Input Transformer.
Model RS-1012 Standby Relay.
Model SC-1102 Front Servicing Hinge.
Model SCP-1101 Blank Panel Cover for rack mounted amplifier.

Model TB-1011 INPUT TRANSFORMER

DESCRIPTION AND APPLICATION

The STROMBERG-CARLSON Model TB-1011 Input Transformer is a plug-in bridging type which provides a balanced input for the APH-1050 Power Amplifier. Its use is recommended when it is necessary to bridge a low level (O DBM) signal distribution line, or when a 10,000 ohm C.T. balanced input is required. The Transformer has plug-in type 8 pin octal base. The dimensions are 1⅜" in diameter and 2¾" high overall (2¼" high not including pins).

ARCHITECT-ENGINEERS' SPECIFICATIONS

The low level balanced line bridging input transformer shall be plug-in type, STROMBERG-CARLSON Model TB-1011 or equal. The primary impedance shall be 10,000 ohms center tapped, and the secondary impedance shall be 50,000 ohms. The frequency response shall be within 2 db 20-20,000 cps. The Transformer shall have a high permeability shield. The Transformer shall be enclosed in a one piece case, and filled with a moisture proof compound for protection against humidity, temperature, and corrosive atmosphere.

Model RS-1012 STANDBY RELAY

DESCRIPTION AND APPLICATION

The STROMBERG-CARLSON Model RS-1012 Standby Relay is a plug-in type with a dustproof enclosure. For those applications, such as voice paging or other intermittent program transmission requirements, the optional Standby Relay is used to cut off plate current. This feature reduces power consumption and heat generation, and prolongs the life of component parts and output tubes. The Amplifier is always ready for immediate operation with no wait for warm-up. The relay coil resistance is 400 ohms and operates on 24 volts DC. The dimensions are 1½" square and 3" high overall (2½" high not including pins).

ARCHITECT-ENGINEERS' SPECIFICATIONS

The Standby Relay shall be STROMBERG-CARLSON Model RS-1012 or equal. The contact configuration shall be single pole double throw. The coil shall operate on 24 volts DC and shall measure 400 ohms. The Relay shall be mounted in a dustproof enclosure on a standard 8 pin octal base.

Model SCP-1101 AMPLIFIER PANEL

DESCRIPTION AND APPLICATION

The STROMBERG-CARLSON Model SCP-1101 Amplifier Panel occupies (4) panel spaces (7"), and provides an optional dress cover for the APH-1100 Amplifier when it is rack mounted.

ARCHITECT-ENGINEERS' SPECIFICATIONS

The blank cover panel shall be STROMBERG-CARLSON Model SCP-1101 or equal. The Panel shall have a pilot light opening and be finished in Sahara Beige, semi-gloss, baked enamel. The Panel shall be 19" rack mount, four (4) panel spaces (7").

Model SC-1102 HINGE ASSEMBLY

DESCRIPTION AND APPLICATION

The STROMBERG-CARLSON Model SC-1102 Hinge Assembly affords complete front servicing and easy access to front and back of the Model APH-1100 Power Amplifier when it is rack mounted. The Hinge Assembly is optional and is used in place of the right hand rack mount flange.

ARCHITECT-ENGINEERS' SPECIFICATIONS

The Amplifier shall swing out from the front of the rack on a hinge assembly, STROMBERG-CARLSON Model SC-1102, or approved equal, allowing quick, easy access to all sides of the amplifier.

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