



HHLF SERIES
ANSI/UL 464 COMPLIANT



LOW FREQUENCY AUDIBLE SIGNALING APPLIANCE

I. INTRODUCTION

The Hochiki America model HHLF is a high quality low frequency audible signaling appliance. This appliance is intended to provide a low frequency audible notification signal for the purpose of life safety and property protection.

This appliance is ideal for any occupancy that requires notification appliances per the applicable building or fire code or wherever dependable alarms are required. As of January 1, 2014 NFPA 72 requires that audible appliances installed in sleeping areas produce a low frequency alarm signal. For your information, the National Fire Protection Association's (NFPA) Standard 72, 2013 Edition, Chapter 18, Section 18.4.5 Sleeping Area Requirements, states the following:

18.4.5.3 Effective January 1, 2014, audible appliances provided for the sleeping areas to awaken occupants shall produce a low frequency alarm signal that complies with the following:

- 1) The alarm signal shall be a square wave or provide equivalent awakening ability
- 2) The wave shall have a fundamental frequency of 520Hz ± 10 percent

II. LOCATION

This appliance is intended for use in fire alarm systems and is to be installed in accordance with this manual, the recommendation of the local authorities having jurisdiction, and other NFPA documents that provide standards on notification appliances for protective signaling systems. The HHLF is intended for indoor installations only; this appliance is **not** listed for **outdoor** or drip proof applications.

Wall mounted horn only appliances shall have their tops above the finished floors at heights of not less than 90 in. (2.30m) and below the finished ceilings at heights of not less than 6 in. (152mm). Different mounting heights shall be permitted by the AHJ provided the sound pressure level requirements of NFPA 72 are met.

III. MOUNTING, ROUGH-IN BOX AND RUN WIRING

This unit is designed for mounting to most single gang boxes, 4" square outlet boxes, 2-gang masonry boxes or non-metallic 2-gang switch boxes. Conduit entrance to boxes should be selected to insure sufficient wiring clearance.

1. Run a minimum 18 gauge insulated 2 or more conductor cable.
2. Mount a box for each remote signaling appliance. Screw bracket onto box. Insert signal into bracket and slide to the right firmly into the terminal block receptacle. Insert mounting screw as shown and tighten. Cover assembly with the plastic housing.

NOTICE: WIRING SHOULD BE CONNECTED TO MOUNTING BRACKET PRIOR TO MOUNTING SIGNAL. INCOMING POSITIVE POWER LEAD MUST BE BROKEN AND EACH LEAD IS TO BE INSERTED INTO EACH OF THE TOP TWO TERMINALS. A BARRIER IS PROVIDED TO PREVENT BOTH LEADS FROM BEING PLACED UNDER THE SAME TERMINAL.

HORN DECIBEL AND CURRENT RATINGS PRODUCT INFORMATION

Horn Mode	Horn Decibel Levels: Reverberant Room		24VDC Nominal Horn Current Ratings (mA)				Horn Current Ratings Over Input Voltage Range of 16-33V (mA)			
	Minimum SPL at 10Ft. Per ANSI/UL 464 (NORMAL)	Minimum SPL at 10Ft. Per ANSI/UL 464 (LOUD)	24VDC Operating Current (NORMAL)	24VDC Operating Current (LOUD)	24VFWR Operating Current (NORMAL)	24VFWR Operating Current (LOUD)	Regulated 24VDC Max. Operating Current (NORMAL)	Regulated 24VDC Max. Operating Current (LOUD)	Regulated 24VFWR Max. Operating Current (NORMAL)	Regulated 24VFWR Max. Operating Current (LOUD)
Temporal 3 520 Hz	77.8 dBA	79.8 dBA	72.1 mA	120.1 mA	104.6 mA	158.4 mA	99.4 mA	155.8 mA	152.1 mA	213.5 mA
Temporal 4 520 Hz*	81.5 dBA	83.4 dBA	75.9 mA	116.0 mA	108.1 mA	182.0 mA	100.1 mA	157.2 mA	163.1 mA	235.2 mA

* Temporal 4 520 Hz measured per ANSI/UL 2075

NOTICE:

- ◆ THE THREE PULSE TEMPORAL PATTERN (TEMPORAL 3) IS TO BE USED FOR EVACUATION USE ONLY.
 - ◆ THE STANDARD FIRE ALARM EVACUATION SIGNAL IS A THREE-PULSE TEMPORAL PATTERN. THE PATTERN CONSISTS OF THE FOLLOWING IN THIS ORDER:
 - (1) AN "ON" PHASE LASTING 0.5 SECOND ± 10 PERCENT
 - (2) AN "OFF" PHASE LASTING 0.5 SECOND ± 10 PERCENT FOR THREE SUCCESSIVE "ON" PERIODS
 - (3) AN "OFF" PHASE LASTING 1.5 SECONDS ± 10 PERCENT
 TOTAL CYCLE LASTS FOR 4 SECONDS ± 10 PERCENT
 - ◆ THE SOUND OUTPUT FOR THE TEMPORAL 3 TONE IS RATED LOWER SINCE THE TIME THE HORN IS OFF IS AVERAGED INTO THE SOUND OUTPUT RATING. UNITS HAVE BEEN TESTED TO 0°C, 49°C AND 93% HUMIDITY.
- ◆ THE FOUR PULSE TEMPORAL PATTERN (TEMPORAL 4) IS TO BE USED FOR CARBON MONOXIDE ALARM SIGNAL USE ONLY.
 - ◆ THE STANDARD CARBON MONOXIDE ALARM IS A FOUR PULSE TEMPORAL PATTERN. THE AUDIBLE CARBON MONOXIDE ALARM SIGNAL SHALL COMPLY WITH THE FOLLOWING:
 - (1) SIGNALS SHALL BE A SINGLE TONE PATTERN CONSISTING OF FOUR CYCLES OF 100 MILLISECONDS ± 10 PERCENT "ON" AND 100 MILLISECONDS OF ± 10 PERCENT "OFF," FOLLOWED BY 5 SECONDS ± 10 PERCENT "OFF."
 - (2) AFTER THE INITIAL 4 MINUTES OF ALARM, THE 5-SECOND "OFF" TIME SHALL BE PERMITTED TO BE CHANGED TO 60 SECONDS ± 10 PERCENT.
- ◆ THE FOUR PULSE TEMPORAL PATTERN (TEMPORAL 4) CAN ONLY BE OBTAINED ON THIS PRODUCT WHEN USED IN CONJUNCTION WITH THE HOCHIKI AMERICA HTSM SYNCHRONIZATION MODULE OR HTSM SYNCHRONIZATION PROTOCOL.

IV. WIRING

Wiring for synchronized horns.

Using this method you may:

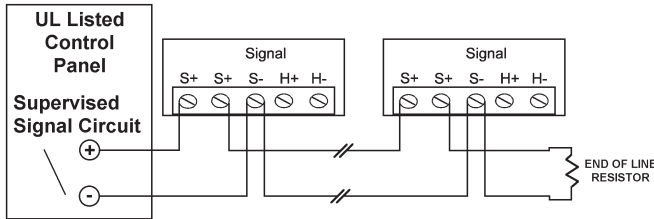
- Use the Hochiki America HTSM synchronization protocol to provide synchronization of temporal 3 and temporal 4 tones and mute the horn, if required.

NOTICE:

- THIS APPLIANCE IS NOT RECOMMENDED FOR USE ON CODED OR PULSING SIGNALING CIRCUITS. HOWEVER, USE OF THE HTSM CONTROL MODULE IS PERMITTED TO SYNCHRONIZE THE HORN.
- THE FOUR PULSE TEMPORAL PATTERN (TEMPORAL 4) CAN ONLY BE OBTAINED ON THIS PRODUCT WHEN USED IN CONJUNCTION WITH THE HOCHIKI AMERICA HTSM SYNCHRONIZATION MODULE OR HTSM SYNCHRONIZATION PROTOCOL.
- SEE HTSM CONTROL MODULE MANUAL (550-0633, MANUAL ISSUE DATE (05-01-15) FOR SYNCHRONIZATION MODULE WIRING DIAGRAMS. HTSM MANUAL CAN BE OBTAINED AT [HTTP://WWW.HOCHIKI.COM](http://www.hochiki.com) OR CALL HOCHIKI AMERICA CORPORATION AT 714-522-2246.

Conventional Method:

You may connect the horn directly from a source of rated power without the use of a control module. However, the horns will NOT be synchronized.



CAUTION: For the HHLF, only the S+ and S- terminals are to be used for connection to FACP. The H+ and H- terminals are to be used for dBA selection using provided jumper. **DO NOT APPLY VOLTAGE TO H+ AND H- TERMINALS.**

Mounting Bracket:

Allows the installer to pre-wire the system, test for system supervision, remove the signal head until occupancy, switch out Hochiki America signals without changing mounting brackets and has locking edge connector for snap-in-place installation.

Instant Voltage Verification:

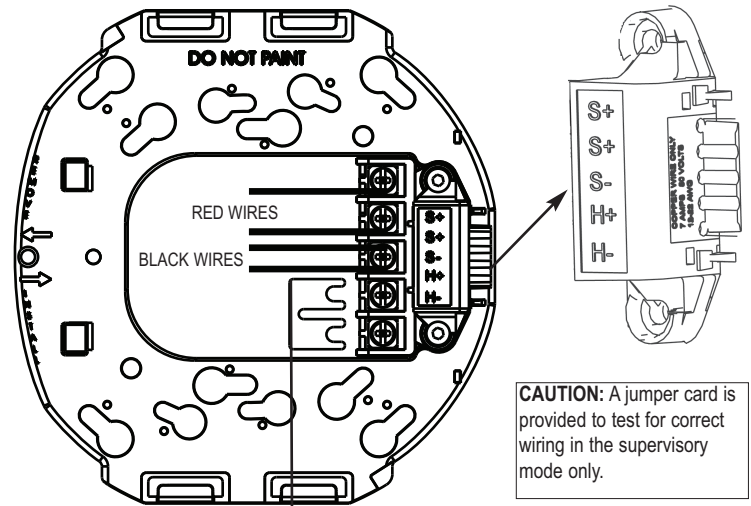
It is often necessary to confirm the voltage drop along a line of devices. The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically this would be done at the end of the line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations.

NOTICE: CARE SHOULD BE TAKEN TO NOT SHORT THE TEST PROBES.

$$\text{MAX. WIRE DISTANCE (IN FEET)} = \frac{(\text{PANEL VOLTAGE} - \text{APPLIANCE MIN. VOLT}) \times \text{WIRE CONDUCTIVITY}}{\text{TOTAL CURRENT DRAW}}$$

WIRE	CONDUCTIVITY
18AWG	60
16AWG	95
14AWG	153
12AWG	244

Includes wire to and from appliance. **CAUTION:** Applies only to regulated supplies. Assumes all appliances are at the end of wire run (worst case).

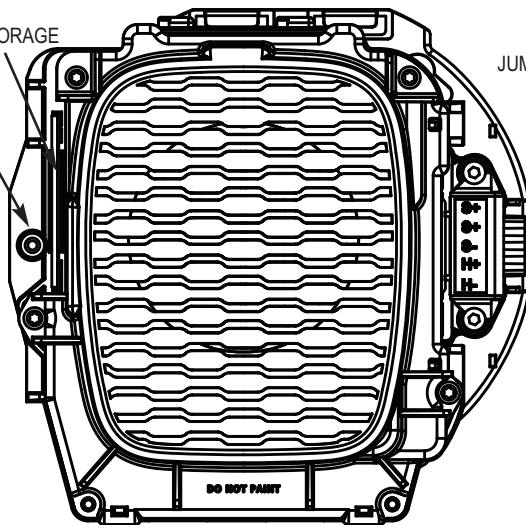


NOTICE: PROPER INSTALLATION OF BRACKET IS AS SHOWN IN ABOVE DIAGRAM. WIRE TERMINAL BLOCK FEATURED ON RIGHT.

NOTICE: NORMAL-LOUD DECIBEL JUMPER. FOR LOUD DECIBEL INSTALL JUMPER.

JUMPER CARD STORAGE

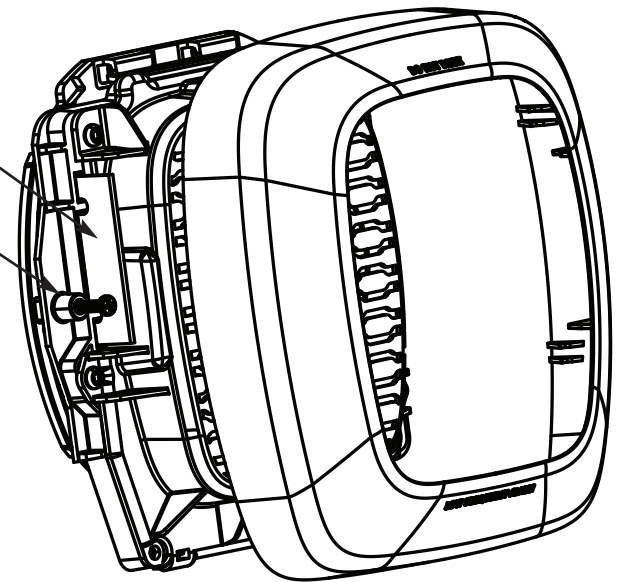
LOCKING SCREW (optional)



SLIDE ONTO BRACKET

JUMPER CARD STORAGE

LOCKING SCREW (optional)



TO REMOVE BEZEL, SQUEEZE TOP AND BOTTOM OF BEZEL UNTIL BEZEL RELEASES FROM BRACKET.

 **WARNING**

THIS APPLIANCE WILL NOT OPERATE WITHOUT ELECTRICAL POWER. AS FIRES FREQUENTLY CAUSE POWER INTERRUPTIONS, HOCHIKI AMERICA SUGGESTS YOU DISCUSS FURTHER SAFEGUARDS WITH YOUR LOCAL FIRE PROTECTION SPECIALIST.

V. CHECKOUT AND TROUBLESHOOTING

1. Supply power to the system control panel. The auxiliary signaling appliances in the system should not be activated.
2. If the signal is activated:
 - Check all smoke and fire detectors in the system to make sure they have not been activated.
 - Check all wiring connections to make sure the signal detection circuits are not reversed or shorted together. Check wire color codes and traces.
 - Verify that the jumpers and switches are properly set on both the control module and signal appliance. If the jumper on the HTSM is removed, the horns will not produce any sound unless there is an input to the H+ and H- terminals on the control module.
3. To test the signal appliances, trip the auxiliary panel or activate the alarm circuit at the main control panel or activate one of the fire detection units in the system. All auxiliary signals should be activated.
4. An operational test on this product should be conducted in accordance with National Standards or at a minimum annually and more often if dictated by local and state codes or authorities having jurisdiction.

NOTICE: THESE TESTING PROCEDURES AND TROUBLESHOOTING INSTRUCTIONS ARE GENERALIZED. PLEASE REFER TO THE SYSTEM CONTROL PANEL OPERATING INSTRUCTIONS FOR PROPER OPERATION OF THE PANEL AND FIRE DETECTION SYSTEM.

SIGNALING APPLIANCE LIMITATION:

Your horn meets or exceeds the current audibility requirements of ANSI/UL 464. However, if the appliance is located outside a bedroom it may not wake up a sound sleeper, especially if the room door is closed or only partially open.

VI. TO RETURN AN APPLIANCE

Should you experience problems with your appliance, proceed as follows:

1. Turn off electrical power to the auxiliary alarm circuit.
2. Remove the bezel, then mounting screw and slide signal off from bracket
3. Replace unit that was removed to restore wiring supervision and to eliminate system trouble alert.
4. Carefully pack the defective unit (the manufacturer cannot be responsible for consequential damage due to shipping or mis-handling). Include a return address and complete details as to the nature of the difficulties being experienced and date of installation.
5. Return to: Hochiki America Corporation, 7051 Village Drive, Suite 100, Buena Park, CA 90621. Prior to returning, call the Hochiki America Field Service Department at 714-522-2246 to obtain a RMA Number.

LIMITED WARRANTY

For a period of 36 months from the date of purchase or a maximum of 42 months from the date of manufacture (or as long as required by applicable law), Hochiki America warrants to you the original purchaser that your appliance will be free from defects in workmanship and materials under normal use and service.

This warranty does not apply and is void if damage or failure is caused by: accident, abuse, misuse, abnormal use, faulty installation, liquid contact, fire, earthquake or other external cause; operating the appliance outside Hochiki America's published guidelines; or service, alteration, maintenance or repairs performed by anyone other than Hochiki America. This warranty also does not apply to: consumable parts, such as batteries; cosmetic damage, including but not limited to scratches or dents; defects caused by normal wear and tear or otherwise due to the normal aging of the appliance, or if any serial number has been removed or defaced from the appliance.

TO THE EXTENT PERMITTED BY LAW, THIS WARRANTY AND THE REMEDIES SET FORTH HEREIN ARE EXCLUSIVE AND IN LIEU OF ALL OTHER WARRANTIES, REMEDIES AND CONDITIONS, WHETHER ORAL, WRITTEN, STATUTORY, EXPRESS OR IMPLIED. HOCHIKI AMERICA DISCLAIMS ALL STATUTORY AND IMPLIED WARRANTIES, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND WARRANTIES AGAINST HIDDEN OR LATENT DEFECTS TO THE EXTENT PERMITTED BY LAW. TO THE EXTENT SUCH WARRANTIES CANNOT BE DISCLAIMED, SUCH IMPLIED WARRANTIES SHALL APPLY ONLY FOR THE WARRANTY PERIOD SPECIFIED ABOVE. PLEASE NOTE THAT SOME STATES (COUNTRIES AND PROVINCES) DO NOT ALLOW LIMITATION ON HOW LONG AN IMPLIED WARRANTY (OR CONDITION) LASTS. SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU. EXCEPT AS PROVIDED IN THIS WARRANTY AND TO THE EXTENT PERMITTED BY LAW, HOCHIKI AMERICA WILL NOT BE LIABLE FOR ANY DIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF WARRANTY OR CONDITION, OR ARISING IN CONNECTION WITH THE SALE, USE OR REPAIR OF THE APPLIANCE, OR UNDER ANY OTHER LEGAL THEORY, INCLUDING BUT NOT LIMITED TO LOSS OF USE, LOSS OF REVENUE, LOSS OF ACTUAL OR ANTICIPATED PROFITS, LOSS OF THE USE OF MONEY, LOSS OF BUSINESS, LOSS OF OPPORTUNITY, LOSS OF GOODWILL, AND LOSS OF REPUTATION. THE MAXIMUM LIABILITY OF HOCHIKI AMERICA SHALL NOT IN ANY CASE EXCEED THE PURCHASE PRICE PAID BY YOU FOR THE APPLIANCE. PLEASE NOTE THAT SOME STATES (COUNTRIES AND PROVINCES) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

If a defect in workmanship or materials causes your appliance to become inoperable within the warranty period, you must return the appliance to Hochiki America postage prepaid to: Hochiki America, 7051 Village Drive, Suite 100, Buena Park, CA 90621. You must prove to the satisfaction of Hochiki America the date of purchase of your appliance. You must also enclose a return address. Warranty service may only be performed by Hochiki America personnel at Hochiki America's facilities in Buena Park, California. You must also pack the appliance to minimize the risk of it being damaged in transit. If we receive an appliance in a damaged condition as the result of shipping, we will notify you and you must seek a claim with the shipper.

If you submit a valid claim to Hochiki America during the warranty period, Hochiki America will, at its option, repair your appliance or furnish you with a new or rebuilt appliance without charge to you except for postage required to return the appliance to us. Hochiki America will not reimburse you for repairs or replacement parts provided by other parties. Your repaired or replacement appliance will be returned to you free of charge and it will be covered under the warranty for the balance of the warranty period, if any. When a product or part is replaced, any replacement item becomes your property and the replaced item becomes property of Hochiki America. For additional warranty and product information go to www.hochiki.com.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE (OR BY COUNTRY OR PROVINCE). BY THIS WARRANTY, HOCHIKI AMERICA DOES NOT LIMIT OR EXCLUDE YOUR RIGHTS EXCEPT AS ALLOWED BY LAW. TO FULLY UNDERSTAND YOUR RIGHTS, YOU SHOULD CONSULT THE LAWS OF YOUR COUNTRY, PROVINCE OR STATE.

Important Notice:

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