



4-inch Speakers and Speaker-Strobes

964 and 965 Series



Overview

EST's 964 and 965 Series Speaker and Speaker-Strobes are designed for broadcasting high quality, integrated emergency voice communications, and alert or alarm tone signals. Use them in life safety applications, especially to notify the hearing impaired, where transitory people are expected such as hotels, malls, airports, hospitals and other public buildings.

The 7.35 inch (187 mm) diameter steel baffle is finished with an attractive yet durable, high quality, baked white epoxy polyester powder coat. An optional red finish is available. The speakers mount to standard four-inch square electric box with extension ring or to EST's 960A Series flush boxes. Edwards flush boxes are made from satin coat steel and have flexible mounting straps for using with poured concrete forms.

The mylar speaker cone with its sealed back construction provides extra durability and improved audibility. Wattage taps from ¼ to 2 watt provide maximum on-site flexibility where higher or lower output is desired. Connect up to #12 AWG wire using the speaker's large terminal block. The speaker's integral DC blocking capacitor permits electrical supervision of the audio distribution circuit. Models for 25 Vrms and 70 Vrms circuits are available.

Strobes are designed for 16 to 33 Vdc operation and must be connected to signal circuits that output a constant (not pulsed) voltage. A diode is used to allow full signal circuit supervision.

Standard Features

- UL 1971-listed synchronizing strobe**
 Integrity strobes synchronize to the latest UL 1971 requirements when used with a synchronization source.
- Genesis-compatible**
 All Genesis and Integrity strobes on the same circuit meet UL 1971 synchronization requirements when used with an external control module.
- Approved for public and private mode applications**
 UL 1971-listed as signaling devices for the hearing impaired and UL 1638-listed as protective visual signaling appliances.
- High dBA Output**
 High efficiency, sealed mylar speaker cone produces a loud 90 dBA at 2 watts.
- 25 and 70 volt RMS models**
 All speakers include a DC Blocking Capacitor for audio circuit supervision.
- Field changeable field markings**
 Lens language or standard "FIRE" marking is easily changed with optional LKW and LKC series lens kits.
- Easy Installation**
 Flush mount to standard North American four-inch square box 2-1/8 inches (54 mm) deep with a 1-1/2 inch extension ring.

Application

NOTE: The installation of visible and audible signals are subject to national and local standards, codes, and ordinances. Consult your Authority Having Jurisdiction for device installation requirements, application standards, and minimum performance specifications.

Speakers

All 964 and 965 Series speakers include a DC blocking capacitor to allow electrical supervision of the audio distribution circuit. Models for 25 V_{RMS} and 70 V_{RMS} circuits are available. The mylar speaker with its sealed back construction provides extra durability and improved audibility. Wattage taps from ¼ W to 2 W provide on-site flexibility.

The suggested sound pressure level for each signaling zone used with alert or alarm signals is a minimum of 15 dB above the average ambient sound level or 5 dB above the maximum sound level having a duration of at least 60 seconds, whichever is greater. This is measured 5 feet (1.5 m) above the floor. The average ambient sound level is the RMS, A-weighted sound pressure measured over a 24-hour period.

Doubling the distance from the signal to the ear will theoretically cause a 6dB reduction in the received sound pressure level. The actual effect depends on the acoustic properties of materials in the space. Doubling the power output of a device (e.g.: a speaker from 1W to 2W) will increase the sound pressure level by 3dBA. A 3dBA difference represents a barely noticeable change in volume.

Strobes

Edwards strobes are UL 1971-listed for use indoors as ceiling-mounted or wall-mounted public-mode notification appliances for the hearing impaired. Prevailing codes require strobes to be used where ambient noise conditions exceed specified levels, where occupants use hearing protection, and in areas of public accommodation. Consult with your Authority Having Jurisdiction for details.

As part of the Enhanced Integrity line of products, 964 and 965 Series strobes exceed UL synchronization requirements (within 10 milliseconds other over a two-hour period) when used with a synchronization source. Synchronization is important in order to avoid epileptic sensitivity.

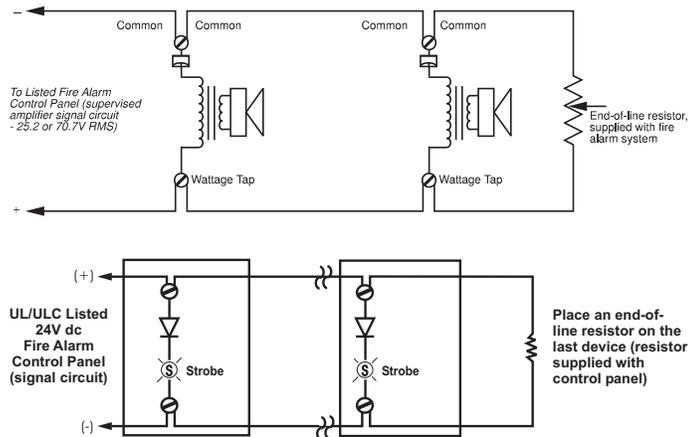
Integrity strobes are fully compatible with Edwards Genesis signals.

NOTE: The flash intensity of some visible signals may not be adequate to alert or waken occupants in the protected area. Research indicates that the intensity of strobe needed to awaken 90% of sleeping persons is approximately 100 cd. Edwards recommends that strobes in sleeping rooms be rated at at least 110 cd.

WARNING: These devices will not operate without electrical power. As fires frequently cause power interruptions, further safeguards such as backup power supplies may be required.

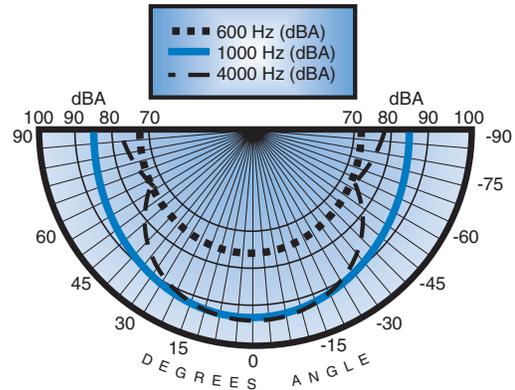
Typical Wiring

Connect 964 Series speakers to 25 V_{rms} audio circuits. Connect 965 Series speakers to 70 V_{rms} audio circuits. The strobe must be connected to signal circuits which output a constant (not pulsed) 24 V_{dc} voltage.



Typical Sound Output Distribution

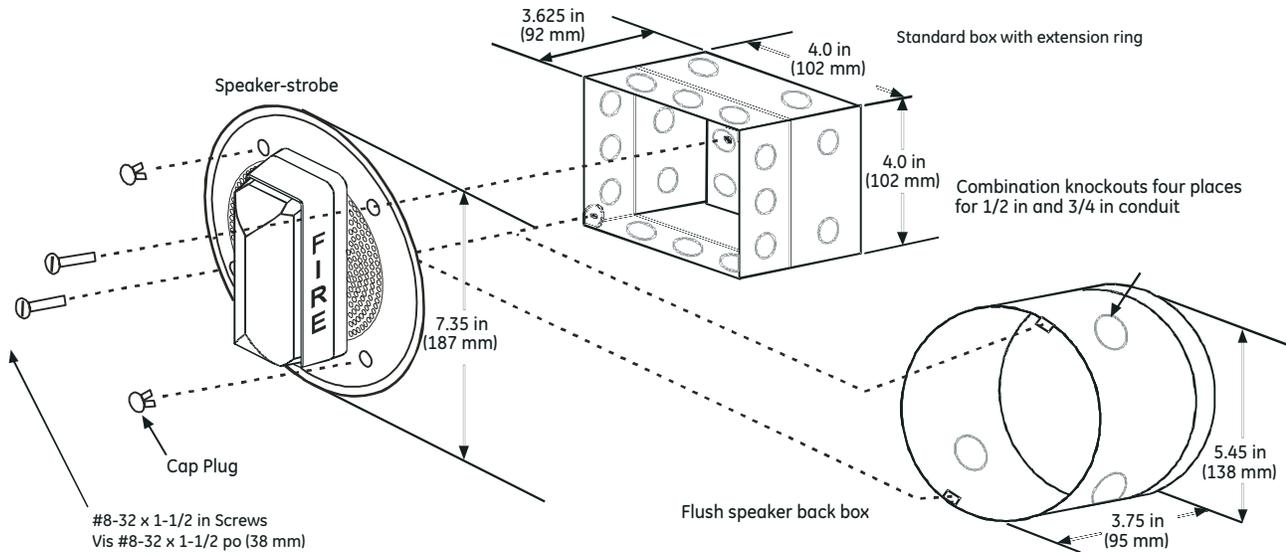
dBA measured at 10 ft (3.05 m) in anechoic chamber



964/965 Series Cone Speaker

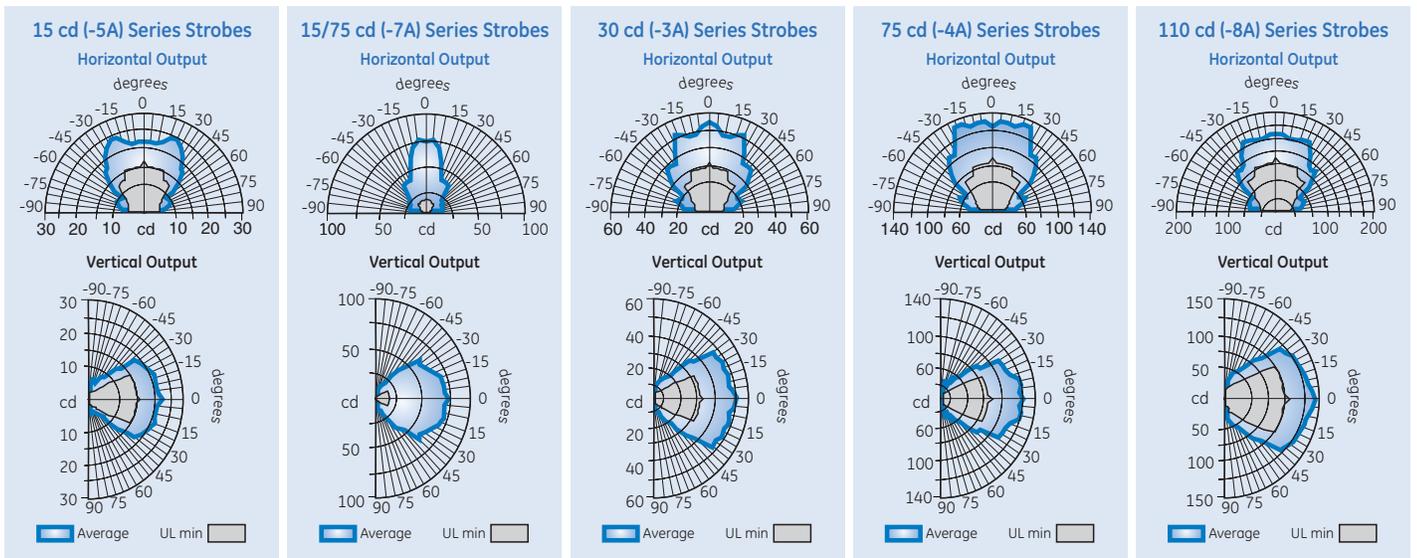
Installation and Mounting

Edwards recommends mounting to 960A Series boxes. All models also fit to a standard flush mount, North-American four-inch square electrical box 2-1/8 inches (54 mm) deep with a 1-1/2 inch extension ring. Edwards recommends that fire alarm speakers and speaker/strobes always be installed in accordance with the latest recognized edition of national and local fire alarm codes.



CAUTION CANADA
Use Standard North American Box with 2 1/8 in (54 mm) Deep Iberville (Commander) Extension Ring (Universal No 53171). Recess box at least 1/8 in (3mm) behind mounting surface.

Light Output Patterns



Operating Current (RMS)

UL Rating	15 cd	15/75 cd	30 cd	75 cd	110 cd
16 Vdc	109	150	130	263	329
16 Vfwr	150	210	189	333	420

Typical Current	15 cd	15/75 cd	30 cd	75 cd	110 cd
24 Vdc	69	90	89	159	180
24 Vfwr	108	128	134	255	260

Vdc: Volts direct current, regulated and filtered
Vfwr: Volts full wave rectified

Current Draw Notes and Comments

1. Current values are shown in mA.
2. UL Nameplate Rating can vary from Typical Current due to measurement methods and instruments used.
3. Edwards recommends using the Typical Current for system design including NAC and Power Supply loading and voltage drop calculations.
4. Use the 16 Vdc RMS current ratings for filtered power supply and battery AH calculations. Use the 16 Vfwr RMS current ratings for unfiltered power supply calculations.
5. Fuses, circuit breakers and other overcurrent protection devices are typically rated for current in RMS values. Most of these devices operate based upon the heating effect of the current flowing through the device. The RMS current determines the heating effect and therefore, the trip and hold threshold for those devices.

Specifications

	964/965-5A	964/965-7A	964/965-3A	964/965-4A	964/965-8A
UL 1638/ULC S526 Rated Strobe Output	15cd	15/75cd	30cd	75cd	110cd
UL 1971 Rated Strobe Output - candela (cd)	15cd (wall only)	15cd (wall or ceiling)	30cd (wall) 15cd (ceiling)	75cd (wall) 60cd (ceiling)	110cd (wall) 60cd (ceiling)
Input/Operating Volts	Speaker: 25 Vrms (964 Series) or 70 Vrms (965 Series) - see ordering table Strobe: 16-33 Vdc Continuous				
Speaker Taps/Output (note 1)	Measured at 10 ft (3.05 m): 4W = 88 dBA, 2W = 85 dBA, 1W = 82 dBA, 1/2W = 79 dBA				
Speaker Cone	Speaker frequency response: 400 to 4,000 Hz; 4-inch (102mm) mylar cone, sealed back construction, rated for 8 watts, 8 ohm voice coil.				
Strobe Flash Synchronization Characteristics	Synchronized at one flash per second. External control module necessary to meet UL 1971 synchronization requirements of 10 milliseconds over a two-hour period.				
Synchronization Sources	G1M-RM, SIGA-CC1S, SIGA-MCC1S, BPS6, BPS10				
Strobe Lens Marking	Supplied with LKC-1 "FIRE" red letters, horizontal both sides (Ceiling Mount) - see LKW and LKC series for wall mount style and optional markings				
Flash Tube Enclosure Baffle	Clear LEXAN with white marking sleeve Steel, baked epoxy polyester powder-coat finish				
Wire Connections	Terminals: separate, polarized inputs for speaker & strobe, #12AWG (2.5mm ²) maximum				
INDOOR Operating Environment	32-120° F (0-49° C) ambient temperature. 85% relative humidity @ 30° C.				
Mounting - INDOOR	Flush: 960A-4RF Round Flush Box Alternate Flush Mount: North-American 4 inch square box, 2-1/8" (54 mm) deep with a 1-1/2 inch extension ring				
Agency Listings	UL 1971, UL 1638, UL 1480, ULC S526, ULC S541, CE Compliant, FM, CSFM, MEA (All models comply with ADA Code of Federal Regulation Chapter 28 Part 36 Final Rule)				

Note 1 - Measured in reverberant room using 400 - 4000 Hz band limited pink noise per UL1480.

Ordering Information

Catalog Number	Description	Ship Wt. lb. (kg)
25 Volt Speakers		
964-1A-4RR	Speaker, Red	3 (1.3)
964-1A-4RW	Speaker, White	
25 Volt Speaker-Strobes		
964-5A-4RR	Speaker-Strobe, 15cd, Red	3.3 (1.5)
964-5A-4RW	Speaker-Strobe, 15cd, White	
964-7A-4RR	Speaker-Strobe, 15/75cd, Red	
964-7A-4RW	Speaker-Strobe, 15/75cd, White	
964-3A-4RR	Speaker-Strobe, 30cd, Red	
964-3A-4RW	Speaker-Strobe, 30cd, White	
964-4A-4RR	Speaker-Strobe, 75cd, Red	
964-4A-4RW	Speaker-Strobe, 75cd, White	
964-8A-4RR	Speaker-Strobe, 110cd, Red	
964-8A-4RW	Speaker-Strobe, 110cd, White	
70 Volt Speakers		
965-1A-4RR	Speaker, Red	3 (1.3)
965-1A-4RW	Speaker, White	
70 Volt Speaker-Strobes		
965-5A-4RR	Speaker-Strobe, 15cd, Red	3.3 (1.5)
965-5A-4RW	Speaker-Strobe, 15cd, White	
965-7A-4RR	Speaker-Strobe, 15/75cd, Red	
965-7A-4RW	Speaker-Strobe, 15/75cd, White	
965-3A-4RR	Speaker-Strobe, 30cd, Red	
965-3A-4RW	Speaker-Strobe, 30cd, White	
965-4A-4RR	Speaker-Strobe, 75cd, Red	
965-4A-4RW	Speaker-Strobe, 75cd, White	
965-8A-4RR	Speaker-Strobe, 110cd, Red	
965-8A-4RW	Speaker-Strobe, 110cd, White	

Catalog Number	Description	Ship Wt. lb. (kg)
Synchronization Sources		
G1M-RM	Genesis Signal Master Remote Mount (1-gang)	0.2 (0.1)
SIGA-CC1S	Synchronization Output Module (Standard Mount) - UL/ULC Listed	0.5 (0.23)
SIGA-MCC1S	Synchronization Output Module (UIO Mount) - UL Listed	0.18 (0.08)
BPS6A	6.5 Amp Booster Power Supply	13 (5.9)
BPS10A	10 Amp Booster Power Supply	13 (5.9)

Mounting Accessories		
960A-4RF	Round Flush Box, Indoor	1.5 (.7)

Lens Marking Kits*		
LKW-1	"FIRE", Wall Orientation	0.2 (.1)
LKW-1R	"FIRE", Red, Wall Orientation	
LKW-2	"FEU", Wall Orientation	
LKW-3	"FIRE/FEU", Wall Orientation	
LKW-4	"SMOKE", Wall Orientation	
LKW-5	"HALON", Wall Orientation	
LKW-6	"CO2", Wall Orientation	
LKW-7	"EMERGENCY", Wall Orientation	
LKW-8	"ALARM", Wall Orientation	
LKW-9	"FUEGO", Wall Orientation	

*Change "W" to "C" for Ceiling Mount (e.g. LKC-1)

Strobes are shipped with standard ceiling mount style "FIRE" lens markings. Where wall orientation, other languages, or different lens markings are required, Edwards offers optional LKW and LKC series Lens Marking Kits. These optional lens markings simply snap on to the strobe. Consult Edwards for availability of special lens markings.



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