

Commander 3 Series

The Commander 3 Series is a low profile strobe and horn/strobe combination that offers dependable audible and visual alarms and the lowest current available.

The GE3 Series 24VDC offers tamperproof field selectable candela options of 15, 30, 60, 75, and 110 candela. The 12VDC offers tamperproof field selectable candela options of 15, 30, 60, and 75 candela.

The Commander 3 Series horn offers a continuous or syncable temporal three in 2400Hz and mechanical tone, a chime and whoop tone. All tones are easy for the professional to change in the field by using switches.

The GE3 Series has a minimal operation current and has a minimum flash rate of 1Hz regardless of input voltage.

The Commander 3 Series is shipped with the standard 4" metal mounting plate which incorporates the popular Super -Slide™ feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.

The Commander 3 also features the Checkmate™ - Instant Voltage Verification feature which allows the installer to check the voltage drop draw and match it to the blueprint.

The GE3 Series appliances are UL 464 and UL 1971, listed for use with fire protective systems and are warranted for three years from date of purchase.



Features

- Field Selectable Candela Options (15, 30, 60, 75, and 110 Candela)
- Super-Slide™ Bracket
- Ease of Supervision Testing Checkmate™
- Instant Voltage Verification Switch Selection for High or Low dBA
- Silence Horn While Strobes Remain Flashing
- Faceplate Available in Red or Off-White
- Unit Dimensions: 5" High x 4.5" Wide x 2.5" Deep
- Lower Installation and Operating Costs
- Input Terminals 12 to 18 AWG
- Switch for Chime, Whoop, Mechanical and 2400Hz Tone
- Tamperproof Re-entrant Grill
- Switch for Continuous or Temporal 3 (Not available on whoop tone)

Listings and Approvals

- UL 464 & UL 1971 Listed
- CAN/ULC S526-M87 Listed
- ULSZ7.S3406 Listed (GEC3-24, GEH24 & GEH12)
- FM Approved
- CSFM: 7135-0569:122 (GEC3-24 & GEH-24)
 - 7125-0569:123 (GES3-24)
 - 7125-0569:129 (GES3-12)
 - 7135-0569:130 (GEC3-12 & GEH-12)
- BS+A/MEA: 285-91-E (GEC3-24 & GES3-24)
 - 580-06-E (GEC3-12 & GES3-12)

GEH 12 VDC / 24 VDC Low Profile Evacuation Horn

Model Number	Part Number	Nominal Voltage	Reverberant dBA @ 10ft. per ul 464	In Anechoic Room dBA @ 10ft.
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GEH12-R	904-1239-002	12 VDC	62-82	100
GEH12-W	904-1241-002	12 VDC	62-82	100
GEH24-R	904-1205-002	24 VDC	62-82	100
GEH24-W	904-1207-002	24 VDC	62-82	100

GES3 12 VDC or 24 VDC Selectable Candela Low Profile Evacuation Strobe

Model Number	Part Number	Nominal Voltage	Candela (UL 1971)
GES3-12WR	904-1235-002	12 VDC	15, 30, 60, 75
GES3-12WW	904-1237-002	12 VDC	15, 30, 60, 75
GES3-12PWP	904-1236-002	12 VDC	15, 30, 60, 75
GES3-12PWW	904-1238-002	12 VDC	15, 30, 60, 75
GES3-24WR	904-1321-002	24 VDC	15, 30, 60, 75, 110
GES3-24WW	904-1319-002	24 VDC	15, 30, 60, 75, 110
GES3-24PWR	904-1322-002	24 VDC	15, 30, 60, 75, 110
GES3-24PWW	904-1320-002	24 VDC	15, 30, 60, 75, 110

Model Designations:

W = Wall Mount
R = Red Faceplate
W= Off-white Faceplate
P = Plain (No Lettering)

All units are available in plain (no lettering). When ordering add a 'P' to the end of the model number. Plain units are non-returnable.

ALERT bezel available
AGENT bezel available

GEC3 12 VDC or 24 VDC Selectable Candela Low Profile Evacuation Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela (UL 1971)	Reverberant dBA @ 10ft., per UL 464	In Anechoic Room dBA @ 10ft.
GEC3-12WR	904-1231-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3-12WW	904-1233-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3 12PWR	904-1232-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3-12PWW	904-1234-002	12 VDC	15, 30, 60, 75	62-82	100
GEC3-24WR	904-1317-002	24 VDC	15, 30, 60, 75, 110	62-82	100
GEC3-24WW	904-1315-002	24 VDC	15, 30, 60, 75, 110	62-82	100
GEC3-24PWR	904-1318-002	24 VDC	15, 30, 60, 75, 110	62-82	100
GEC3-24PWW	904-1316-002	24 VDC	15, 30, 60, 75, 110	62-82	100

GE3-12 Product Strobe Current Ratings

Candela	15cd	30cd	60cd	75cd
12 VDC	106mA	131mA	186mA	237mA
UL Max ¹	136mA	212mA	331mA	436mA

GE3-24 Product Strobe Current Ratings

Candela	15cd	30cd	60cd	75cd	110cd
24 VDC	55mA	63mA	88mA	112mA	136mA
UL Max ¹	78mA	96mA	137mA	180mA	224mA

GE3-12 Product Horn Current Ratings

Horn Mode	Minimum dBA @ 10ft. per UL 464 (High)	Minimum dBA @ 10ft. per UL 464 (Low)	Regulated 12 VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	76	69*	29
Temp 3 Mechanical	75	68*	26
Temp 3 Chime 62*		60*	13
Continuous 2400Hz	79	74*	29
Continuous Mechanical	78	72*	26
Continuous Chime	63*	61*	13
Whoop	78	71*	55

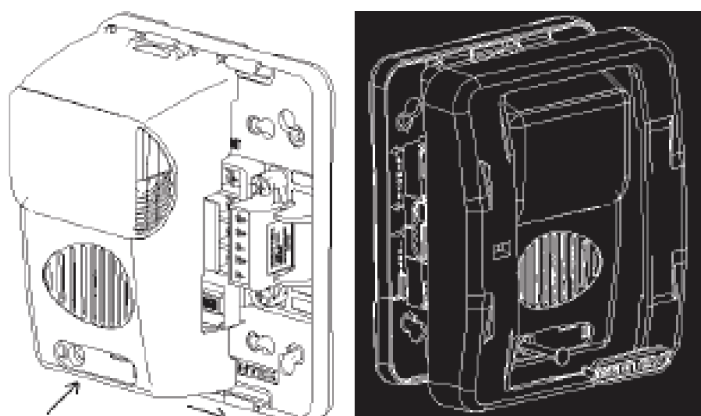
Notes:

- To obtain the horn/strobe current draw, add the strobe current draw and the horn current draw.
- Operating temperature: 32°F to 120°F (0°C to 49°C). The GE3 Series is not listed for outdoor use.
- 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. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as the continuous mode.
- For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual. 12 VDC models are DC only.
- Gentex does not recommend using a coded or pulsing signaling circuit with any of our strobe products (See technical bulletin 014).
- *RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range (16-33 VDC for 24 VDC units, 8-17 VDC for 12 VDC units). For strobes the UL max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

GE3-24 Product Horn Current Ratings

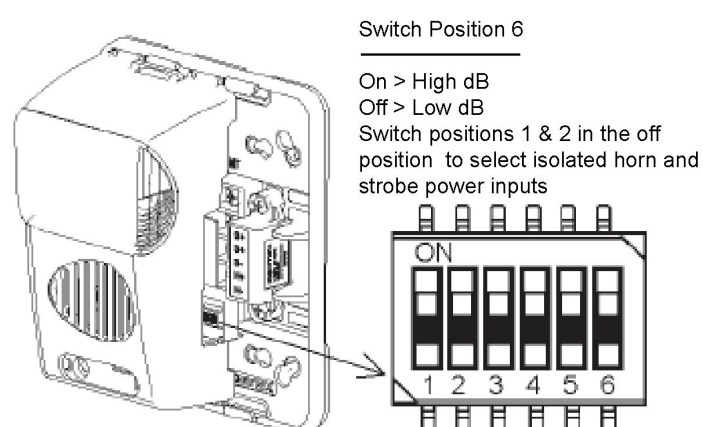
Horn Mode	Minimum dBA @ 10ft. per UL 464 (High)	Minimum dBA @ 10ft. per UL 464 (Low)	Regulated 24 VDC Max. Operating @ High Setting (mA)
Temp 3 2400Hz	78	71*	28
Temp 3 Mechanical	76	70*	25
Temp 3 Chime 70*		66*	15
Continuous 2400Hz	81	74*	28
Continuous Mechanical	80	72*	25
Continuous Chime	70*	66*	15
Whoop	82	69*	56

Mounting Super Slide TM



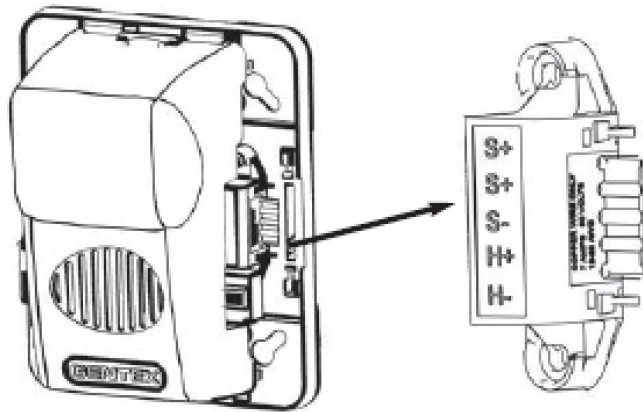
Die cast metal mounting plate: Mounts to single gang, double gang 4" square boxes or GSB box.

Switch Locations



Switch Position	3	4	5
Mechanical - Temp	ON	ON	ON
Mechanical - Cont.	OFF	ON	ON
Hi - Temp	ON	OFF	ON
Hi - Cont.	OFF	OFF	ON
Chime - Temp	ON	ON	OFF
Chime - Cont.	OFF	ON	OFF
Whoop	ON	OFF	OFF
Whoop	OFF	OFF	OFF

Checkmate TM Instant Voltage Verification

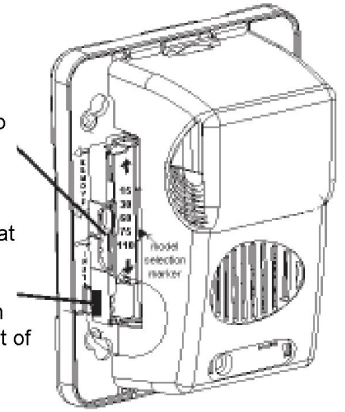


The access holes are provided in the back of the terminal block to allow the voltage to be measured directly without removing the device. Typically this would be done at the end of the line to confirm design criteria. Most measurements will be taken using the S+ and S- locations although access is provided to other locations. NOTE: Care should be taken to not short the test probes.

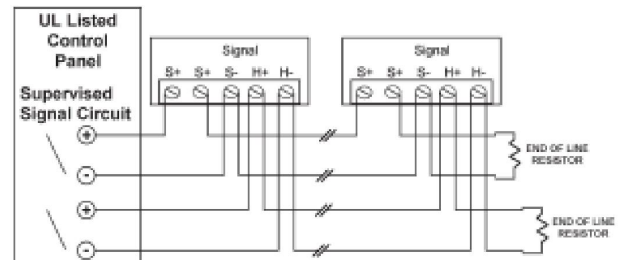
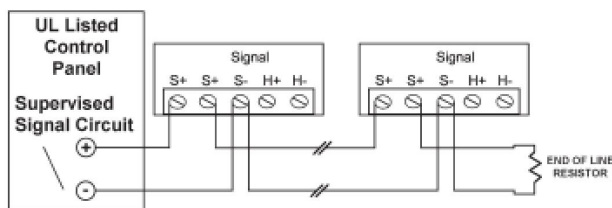
Candela Selection

Candela selection slider switch. Depress center and slide switch to desired brightness level

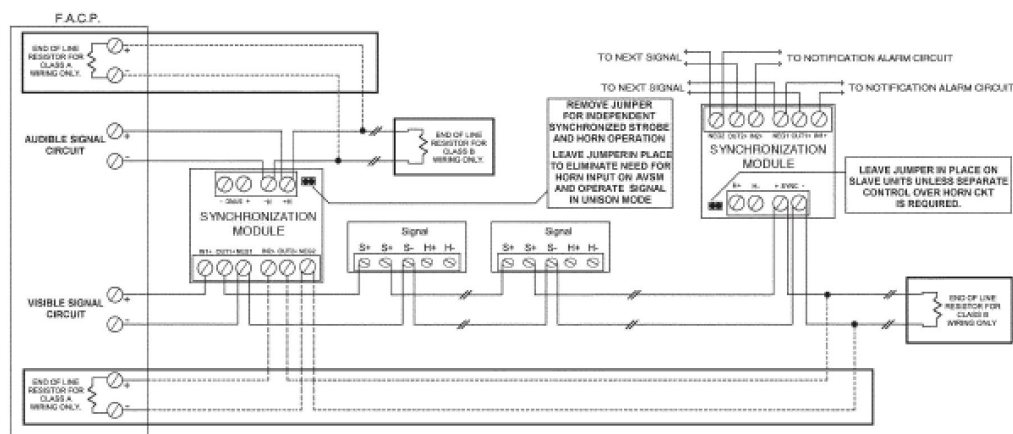
Break off pin and insert into hole at the bottom of the selector to lock candela setting. Signal must be removed from the bracket and pin pushed forward from backside out of hole to change candela.



Conventional GES3 & GEC3 Series Wiring Diagram



GE3 Series With Gentex Synchronization Module Wiring Diagram



Note: See technical bulletin 015 for proper synchronization module for application.

Note: When synchronizing the GE3 12 VDC Series, the AVSM synchronization module MUST be used.

Specification

The audible and/or visible signal shall be Gentex GE3 Series or approved equal and shall be listed by Underwriters Laboratories, Inc per UL 1971 and/or UL 464. The notification appliance shall also be listed with Factory Mutual Listing Service (FM), the California State Fire Marshal (CSFM) and the Bureau of Standards and Appeals (NYC).

The notification appliance (combination audible/visible) shall produce a peak sound output of 100dBA or greater at 12 VDC or 24 VDC as measured in an anechoic chamber. The signalling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized. Unit shall be capable of being installed so that any unauthorized attempt to change the candela setting will result in a trouble signal at the fire alarm control panel.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1Hz or up to 2Hz regardless of power input voltage. The appliance shall have an operating current of 55mA or less at 24VDC for the 15Cd strobe circuit and 106mA or less at 12VDC for the 15Cd strobe circuit. The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adaptor plate.

The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power for 24 VDC models or a voltage range of 8-17.5 volts for 12 VDC models. The appliance shall be capable of testing supervision without disconnecting wires. Also the appliance shall be capable of mounting to a surface back box. The unit shall also be able to verify voltage at the unit without removing unit.

Commander 4 Series

The GCS/GCC Series is a ceiling mount strobe or horn/strobe combination that offers dependable audible and visual alarms and the lowest current available.

The GCS/GCC offers tamperproof field selectable candela options of 15, 30, 75, 95, 115 and 150 candela.

The GCC horn offers a continuous or synchable temporal three in 2400Hz or mechanical tone. These tones are easy for the professional to change in the field by using switches. The models are shipped from the factory in the temporal three alarm mode.

The GC Series has a minimal operating current and has a minimum flash rate of 1Hz regardless of input voltage.

The Commander 4 Series comes standard with the 4" mounting plate which incorporates the popular Super-Slide™ feature that allows the installer to easily test for supervision.

The Commander 4 also features the Checkmate™ - Instant Voltage Verification feature which allows the installer to check the voltage without removing the signal.

The GC Series appliances are UL 464 and UL 1971 listed for use with fire protective systems and are warranted for three years from the date of purchase.



Features

- Field Selectable Candela Options (15, 30, 75, 95, 115 and 150 candela)
- Super-Slide™ Bracket - Ease of Supervision Testing
- Checkmate™ - Instant Voltage Verification
- Switch Selection for High or Low dBA
- Silence Horn while Strobes Remain Flashing
- Unit Dimensions: 6" x 2.6"
- Lower Installation and Operating Costs
- Input terminals 12 to 18 AWG
- Switch for Mechanical and 2400Hz Tone
- Tamperproof Re-entrant Grill
- Switch for Continuous or Temporal 3
- Faceplate Available in Red or Off-White

Listings and Approvals

- UL 464 & UL 1971 Listed
- CAN/ULC S526-M87 Listed
- ULSZ7.S3406 Listed (GCC)
- FM Approved
- CSFM:
 - 7135-0569:122 (GCC)
 - 7125-0569:123 (GCS)
- BS+A/MEA: 285-91-E

GCS 24 Volt Ceiling Mount Selectable Strobe

Model Number	Part Number	Nominal Voltage	Candela
GCS24CR	904-1213-002	24 VDC	15, 30, 75, 95, 115, 150
GCS24CW	904-1215-002	24 VDC	15, 30, 75, 95, 115, 150
GCS24PCR	904-1214-002	24 VDC	15, 30, 75, 95, 115, 150
GCS24PCW	904-1216-002	24 VDC	15, 30, 75, 95, 115, 150

GCS 24 Volt Ceiling Mount Selectable Horn/Strobe

Model Number	Part Number	Nominal Voltage	Candela	Reverberant dBA @ 10 ft. Per UL 464 ¹	In Anechoic Room dBA @ 10ft.
GCC24CR	904-1209-002	24 VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24PCR	904-1210-002	24 VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24CW	904-1211-002	24 VDC	15, 30, 75, 95, 115, 150	81-86	90
GCC24PCW	904-1212-002	24 VDC	15, 30, 75, 95, 115, 150	81-86	90

Notes:

- The GC Series is not listed for outdoor use.
- Operating temperature: 32°F to 120°F (0°C to 49°C)
- For nominal and peak current across UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.
- Gentex does not recommend using a coded or pulsing signalling circuit with any of our strobe products (see technical bulletin number 014 for more information).

Model Designations:

'P' = Plain (no lettering), 'C' = Ceiling Mount, 'R' = Red Faceplate, 'W' = Off-White Faceplate

GCS/GCC Product Strobe Current Ratings

Candela	15cd	30cd	75cd	95cd	115cd	150cd
24 VDC	72mA	101mA	167mA	200mA	214mA	286mA
UL Max ²	120mA	130mA	247mA	318mA	360mA	454mA
Horn Mode	Minimum dBA @ 10ft. Per UL 464 (High)		Minimum dBA @ 10ft. Per UL 464 (Low)		Regulated 24 VDC Max. Operating @ High Setting (mA)	
Temp 3 2400Hz	83		75		23	
Temp 3 Mechanical	21		73*		22	
Continuous 2400Hz	86		78		23	
Continuous Mechanical	84		76		22	

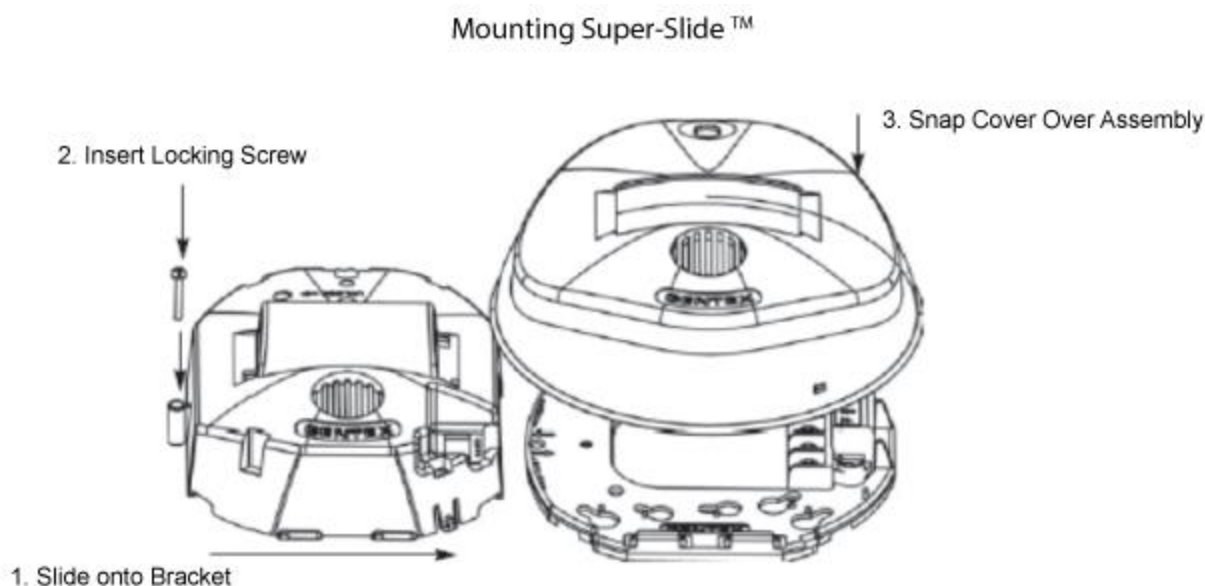
* Operating the horn in this mode at this voltage will result in not meeting the minimum UL reverberant sound level required for public mode fire protection service. These settings are acceptable only for private mode fire alarm use. Use the high dBA setting for public mode application.

Notes: 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. While the horn is producing a tone in the temporal 3 mode its sound pressure is the same as continuous mode. To obtain horn/strobe current draw, add the strobe current draw to and the horn current draw.

¹ The listed horn current draws are for the Continuous Tone mode. The Temporal 3 Tone has a reverberant dBA @ 10ft. per UL 464 is 77-83 with a horn current draw of 34mA

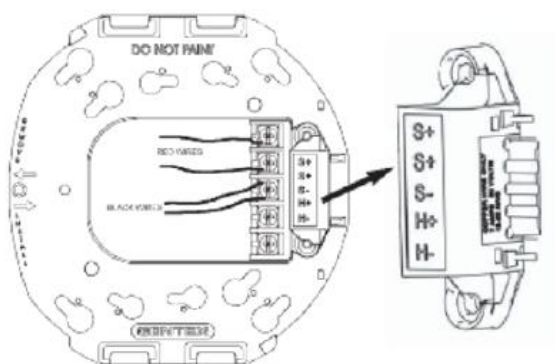
² RMS current ratings are per UL average RMS method. UL max current rating is the maximum RMS current within the listed voltage range (16-33 VDC for 24 VDC units and 8-17 VDC for 12 VDC units). For strobes the UL max current is usually at the minimum listed voltage (16 VDC for 24 VDC units or 8 VDC for 12 VDC units). For Audibles the max current is usually at the maximum listed voltage. For unfiltered FWR ratings, see installation manual.

Mounting Super Slide TM



Checkmate™ Instant Voltage Verification

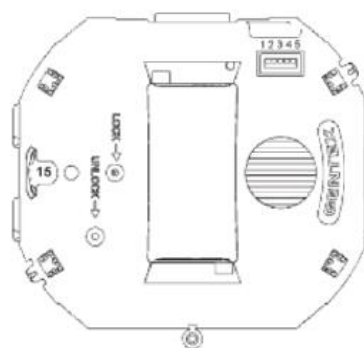
Checkmate™ Instant Voltage Verification



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. Note: Care should be taken to not short the test probes.

Switch Locations

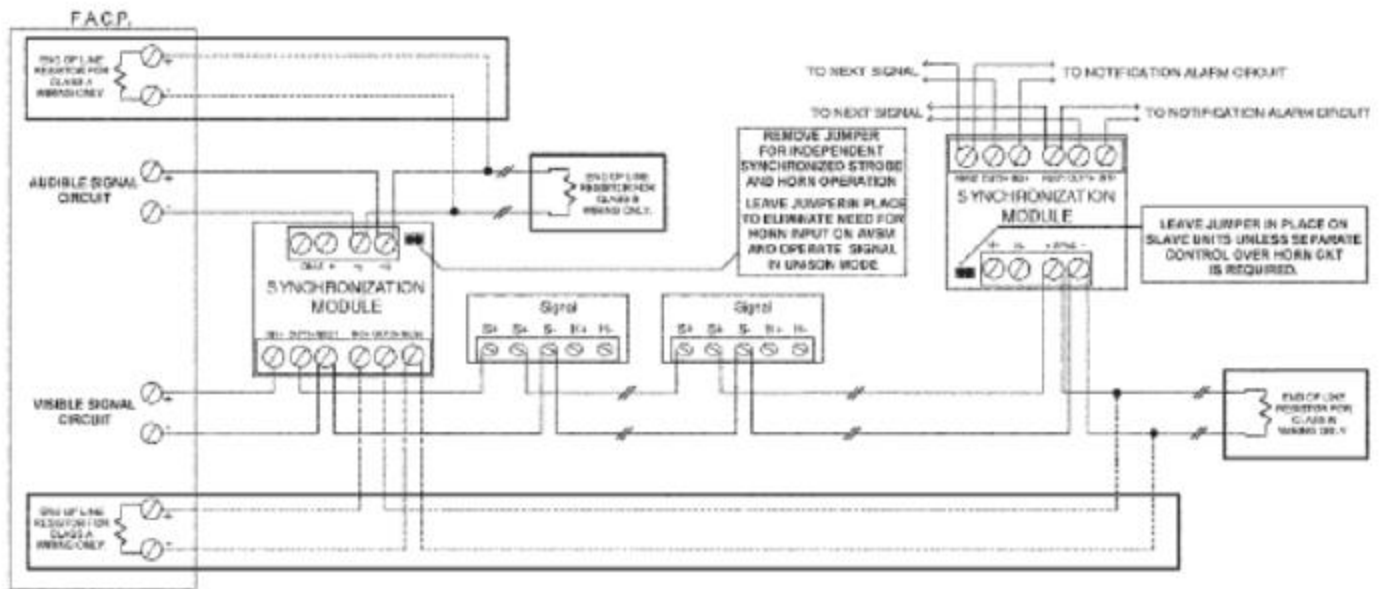
Switch Locations



Switch positions 1 and 2 in the down position to select isolated horn and strobe power inputs. Switch 3 selects between temporal or non-temporal tone. Up is temporal. Switch 4 selects between mechanical or high frequency tone. Up is mechanical. Switch 5 selects between high or low dBA. Up is high dBA.

Wiring Diagram

Wiring Diagram GCS/GCC Series With Gentex Synchronization Module



Note: See technical bulletin 015 for proper synchronization module for application.

Specification

The visible and audible/visible signal shall be Gentex model GC5 or GCC or approved equal and shall be listed by Underwriters Laboratories Inc. per UL 1971 for the GCS and also UL 464 for the GCC. The notification appliance shall also be listed with the California State Fire Marshal (CSFM) and the Bureau of Standards and Appeals (NYC).

The notification appliance (combination audible/visible units only) shall produce a peak sound output of 90dBA or greater as measured in an anechoic chamber. The signalling appliance shall also have the capability to silence the audible signal while leaving the visible signal energized with the use of a single pair of power wires. Additionally, the user shall be able to select either continuous or temporal tone output with the temporal signal having the ability to be synchronized.

The audible/visible and visible signaling appliance shall also maintain a minimum flash rate of 1 Hz or up to 2Hz regardless of power input voltage. The appliance shall have an operating current of 72mA or less at 24 VDC for the 15 Cd circuit.

The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals with barriers for output/input wiring and be able to mount to a single gang, double gang box or double workbox with the use of an adaptor plate. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power.

The appliance shall be capable of test supervision without disconnecting wires. Also the appliance shall be capable of mounting to a surface box. The unit shall also be able to verify voltage at the unit without removing the unit.

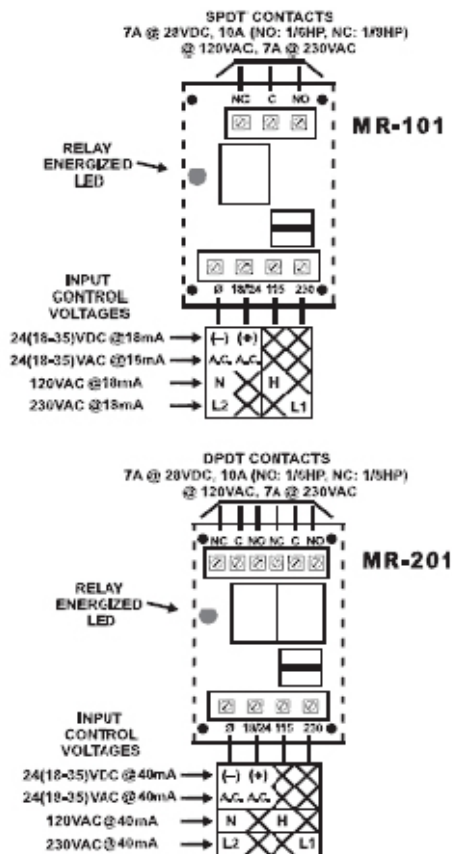
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As our policy is one of constant product improvement the right is therefore reserved to modify product specifications without prior notice.

The MR Series Multi-voltage Control Relays offer SPDT or DPDT 10 Amp resistive contacts which may be operated by one of four input control voltages. A single relay may be energized from a voltage source of 24VDC, 24VAC, 120VAC or 230VAC by wiring to appropriate input terminals.

Each relay position contains a red LED which indicates the relay coil is energized. Relays may be “snapped apart” from a standard 4 module assembly and used independently. These devices are ideal for applications where local contacts are required for system status, remote contacts for control of electrical loads and general purpose switching. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management and Lighting Control Systems.

Wiring Diagram



Features

- Relays may be Energized from a Voltage Source of 18 to 35VDC or VAC, 120VAC or 230VAC
- Each Relay Position Contains a Red LED, which Illuminates when the Coil is Energized. This Provides a Time Saving Device when Checking an Installed System – No Metering is Required
- Single, Dual or Triple Relay Modules may be “Snapped Apart” from Standard 4-Position Master DC Control Inputs are Polarized
- For Continuous Duty use at 24VAC, 24VDC or 120VAC (NOTE: Not intended for continuous duty use @ 230VAC)
- /C Versions Mounted in Enclosures
- /C/R Versions with Red Covers for NYC and Other Uses
- /T Versions come Complete with Track Mounting Hardware which Facilitates Installation in Standard Cabinets
- UL Recognized Relays Rated at 10,000,000 Mechanical Operations
- UL Listed as Control Unit Accessory
- Available in Dust Resistant Enclosures with LED Viewing Port(s)

Listings and Approvals

- UL & CUL Listed
- CSFM Listed
- MEA Accepted

Specification

Model Number	Module Positions	Contact Configuration	Track Mount H x W x D	Enclosure Mount H x W x D	Cover Material	UL* File S3403	MEA File 73-92-E	CSFM File 7300-1004
MR-101/T	1	SPDT	3.25" (82mm) 2.125" (54mm) 1.50" (38mm)			UOXX2		:106
MR-101/C	1	SPDT		5.125" (130mm) 3.125" (79mm) 2.50" (63mm)	Gray ABS-94VO Plastic	UOXX UOXX2 UOXX7	Vol. 14	:101
MR-101/C/R	1	SPDT			Red ABS-94VO Plastic		Vol. 22	
MR-104/T	4	SPDT	3.25" (82mm) 8.50" (215mm) 1.50" (38mm)			UOXX2		:106
MR-104/C	4	SPDT		5.125" (130mm) 9.50" (241mm) 2.50" (63mm)	Plated 18ga CRS	UOXX UOXX2 UOXX7	Vol. 14	:101
MR-104/C/R	4	SPDT			Red 18ga CRS			
MR-201/T	1	DPDT	3.25" (82mm) 2.125" (54mm) 1.50" (38mm)			UOXX2		:106
MR-201/C	1	DPDT		5.125" (130mm) 3.125" (79mm) 2.50" (63mm)	Gray ABS-94VO Plastic	UOXX UOXX2 UOXX7	Vol. 16	:101
MR-201/C/R	1	DPDT			Red ABS-94VO Plastic		Vol. 22	
MR-204/T	4	DPDT	3.25" (82mm) 8.50" (215mm) 1.50" (38mm)			UOXX2		:106
MR-204/C	4	DPDT		5.125" (130mm) 9.50" (241mm) 2.50" (63mm)	Plated 18ga CRS	UOXX UOXX2 UOXX7	Vol. 16	:101
MR-204/C/R	4	DPDT			Red 18ga CRS			
Coil Voltage:		MR-100: 24(18-35)VDC, 24(18-35)VAC, 120VAC, 230VAC MR-200: 24(18-35)VDC, 24VAC, 120VAC, 230VAC (Pull in voltage: 75% of nominal max. @ 25°C; Drop out voltage: 25% of nominal min. @ 25°C						
Polarized:		DC input only						
Energized LED Indicator:		One per module position						
Current Requirement:		Per module position: MR-100 Series = 18mA / MR-200 Series = 40mA						
Contact Ratings:		7A @ 28VDC / 10A (NO: 1/8HP, NC: 1/8HP) @ 120VAC / 7A @ 230VAC						
Contact Construction:		Dry Form "C"						
Environmental:		32°F to 120°F (0° to 49°C) @ 85% RH (@ 32°F), Non-condensing, Non-freezing						
Wiring:		Solid or stranded; #12 to #22 AWG terminals						
/T Versions		3.5" wide, low profile plastic snap track provided with mounting screws						
/C Versions		Bacbox: 18ga CRS, plated with 1/2" conduit knockouts top and bottom						
* UOXX=Control Unit Accessories, System; 2=Component; 7=Certified for Canada								

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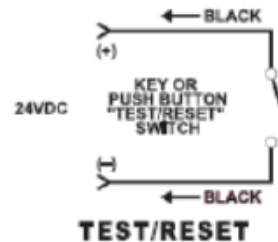
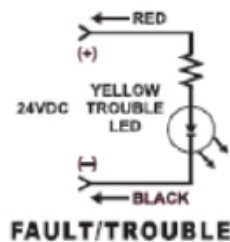
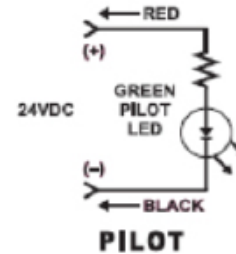
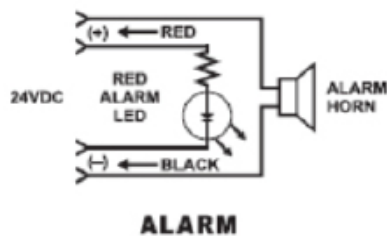
As our policy is one of constant product improvement the right is therefore reserved to modify product specifications without prior notice.

MS Series Remote Accessories

The MS Series remote accessories are designed to be used with the Air Products and Controls Duct Smoke Detectors to provide audible and visual indication as well as remote test/ reset functions. These devices are constructed of attractive, yet durable brushed stainless steel and mount on a standard single or double gang electrical backbox.



Wiring Diagram



> FOR APPROPRIATE DUCT DETECTOR TERMINALS, PLEASE REFER TO DETECTOR INSTALLATION INSTRUCTIONS.

Specification

	Pilot LED (Green)	Alarm LED (Red)	Fault Trouble LED (Yellow)	Push Button Test/ Rest	Key Operated Test/Reset	Horn	Single Gang	Double Gang
MS-RA		Yes					Yes	
MS-RA/P	Yes	Yes					Yes	
MS-RA/R		Yes		Yes			Yes	
MS-RA/P/R	Yes	Yes		Yes			Yes	
MS-RA/P/T	Yes		Yes				Yes	
MS-RA/FT/P	Yes		Yes	Yes			Yes	
MS-KA/R		Yes			Yes		Yes	
MS-KA/P/R	Yes	Yes			Yes		Yes	
MS-KA/P/R/T	Yes		Yes		Yes		Yes	
MS-RD		Yes					Yes	
MS-F/T			Yes				Yes	
MS-RH/P/A	Yes	Yes				Yes	Yes	
MS-RH/KA/P/R	Yes	Yes			Yes	Yes		Yes
MS-RH/KA/P/A/T	Yes	Yes	Yes		Yes	Yes		Yes
MS-RH						Yes	Yes	
Power Requirements:	Alarm LED Trouble LED Pilot LED Alarm Horn	15mA @ 24 VDC 15mA @ 24 VDC 15mA @ 24 VDC 20mA @ 24 VDC						
Sound Pressure:	Alarm Horn	78dB @ 10ft.						
Dimensions:	Single Gang Double Gang	4 1/2" H x 2 3/4" W 4 1/2" H x 4 1/2" W						
Wiring:	LEDs/Horn Switches	6" / 24 AWG Pigtails 6" / 22 AWG Pigtails						
Approvals	UL Listed for use with air products and controls duct smoke detectors including all RW-Series, SM-Series and SL-Series duct smoke detectors. UL URRQ. S7425 ULC URRQ7. S7425 CSFM 7300-1004:107 MEA 73-92-E VOL25							

The PAM Series Relays are encapsulated multi-voltage devices with “flying” leads that offer versatile, reliable performance in a convenient package. Several of the versions contain a red LED which indicates when the relay coil is energized. The PAM Series Relays are packaged with a self-tapping screw and a piece of double sided tape for easy installation almost anywhere. The relays are also packaged with wire-nuts to aid installation.

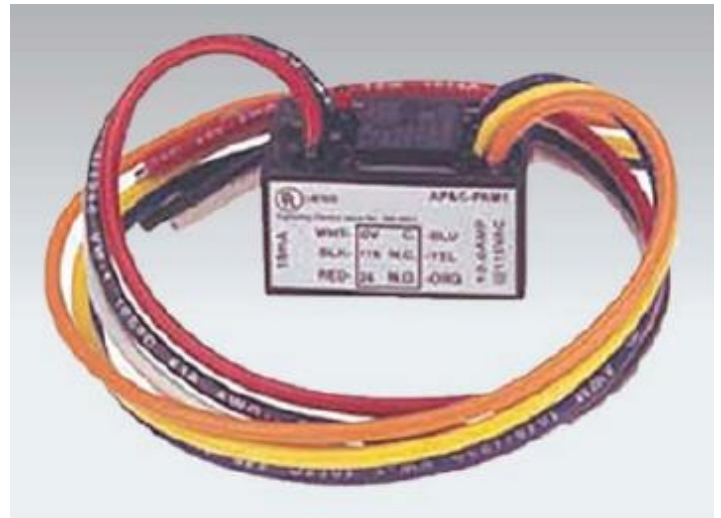
PAM Relays are ideal for applications where remote relays are required for control or status feedback. They are suitable for use with HVAC, Temperature Control, Fire Alarm, Security, Energy Management, Lighting Control Systems and Building Automation Systems.

The PAM-1 Relay provides 10A Form “C” contacts. The relay may be energized by one of three input voltages: 24VDC, 24VAC, or 120VAC. The input voltages are polarity sensitive and diode-protected. PAM-1 Relays contain a red LED which indicates when the relay coil is energized.

The PAM-2 Relay provides 7A Form “C” contacts. The relay may be energized by one of two input voltages: 12VDC or 24VDC. The input voltages are polarity-sensitive and diode protected. PAM-2 Relays contain a red LED which indicates when the relay coil is energized.

The PAM-4 Relay provides 10A Form “C” contacts. The relay may be energized across a wide voltage range from 9VDC to 40VDC, making it ideal for 12VDC and 24VDC EOL circuits. The 15mA operating current is constant across the operating range. The input voltages are polarity-sensitive and diode protected.

The PAM-SD Relay provides 7A Form “C” contacts. The relay may be energized by an input voltage between 20VDC to 32VDC, making it ideal for 24VDC NAC circuits. The input voltages are polarity-sensitive and diode protected. The PAM-SD provides an additional set of wires for redundant input voltage (circuit supervision pass through).



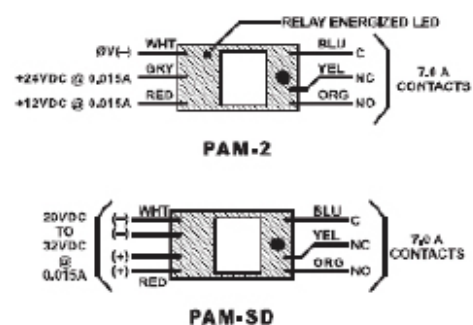
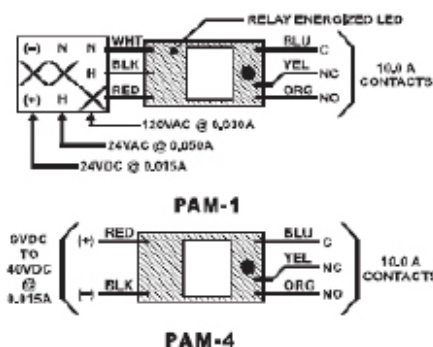
Features

- Multi-Voltage Relays
- Ideal for Remote Relay Control
- Compact Design
- Ease of Installation
- Low Current Consumption

Listings and Approvals

- UL & CUL Listed
- CSFM Listed
- MEA Accepted

Wiring Diagram



Specification

Model Number	PAM-1	PAM-2	PAM-4	PAM-SD
Coil Voltage	24 VAC / 24 VDC / 120 VAC	12 VDC / 24 VDC	9 to 40 VDC	20 to 32 VDC
Polarized	Yes	Yes	Yes	Yes
Energized LED Indicator	Yes	Yes	No	No
Current Requirement				
@12 VDC		15mA	15mA	
@24 VDC	15mA	15mA	15mA	15mA
@24 VAC	50mA			
@120 VAC	30mA			
Contact Configuration	(1) SPDT dry Form "C"	(1) SPDT dry Form "C"	(1) SPDT dry Form "C"	(1) SPDT dry Form "C"
Contact Ratings: (Contact rating/Power factor)				
@5 VDC	250uA /.35 PF	250uA /.35 PF	250uA	250uA /.35 PF
@24 VDC	7A / .35 PF	7A / .35 PF	7A	7A / .35 PF
@120 VAC	10A	7A / .35 PF	10A	7A / .35 PF
Wire Leads	6 "Flying" Leads 12" / 18" AWG Wire-nuts Provided	6 "Flying" Leads 12" / 18" AWG Wire-nuts Provided	5 "Flying" Leads 12" / 18" AWG Wire-nuts Provided	7 "Flying" Leads 12" / 18" AWG Wire-nuts Provided
Ambient Temperature: (@ 100% RH, Condensing)	32°F - 120°F (0°C - 49°C)	32°F - 120°F (0°C - 49°C)	32°F - 120°F (0°C - 49°C)	32°F - 120°F (0°C - 49°C)
Construction	100 % potted (Sealed) with "flying" leads			
Mounting	Pre-drilled mounting screw hole and self tapping screw provided. Double sided tape provided.			
Dimensions				
H	1.50" (38mm)	1.50" (38mm)	1.50" (38mm)	1.50" (38mm)
W	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)	1.00" (25mm)
D	0.90" (23mm)	0.90" (23mm)	0.90" (23mm)	0.90" (23mm)
Listings and Approvals				
UL*:	UOXX/7.S3403	UOXX/7.S3403	UOXX/7.S3403	UOXX/7.S3403
MEA:	73-92-E Vol.21	73-92-E Vol.21	73-92-E Vol.21	73-92-E Vol.21
CSFM:	7300-1004.101	7300-1004.101	7300-1004.101	7300-1004.101

*UOXX = Control Unit Accessories, System; /7=also Certified for Canada

Portable Thermal Strip Printer

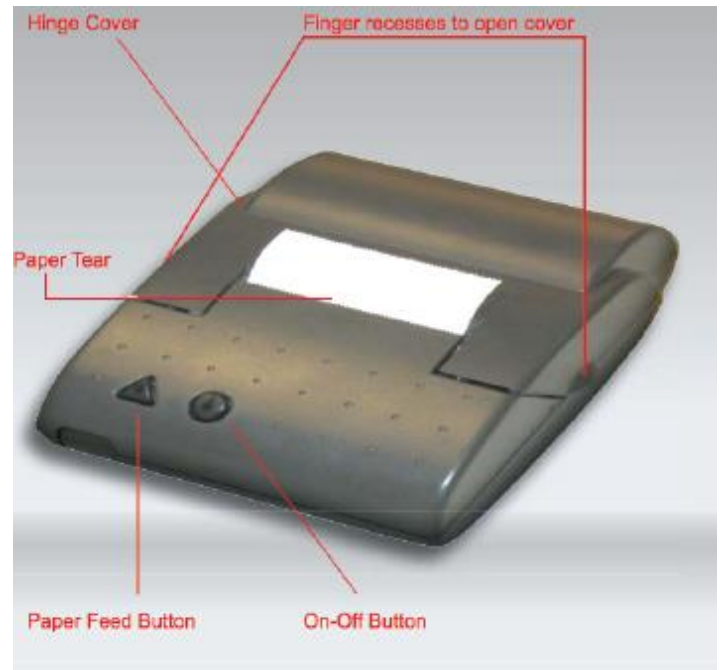
The AX-048, Portable Thermal Printer, is for use with the Axis AX Series Intelligent Fire Alarm Control Panels. This state of the art unit has been designed to provide automatic, or on demand, hard copy listings of the history event log and/or status information. For automatic operation, the printer allows the user to individually select the operation for alarm, trouble, supervisory, and test event types.

The unit is fast and silent during operation and has its own built-in battery backup to enable continuous uninterrupted operation, even during an AC mains fail situation. The printer mechanism itself has an easy access, front-loading paper roll compartment.

Ideally suited for engineer use, connect the printer to the panel during commissioning/maintenance to print out details of troubles, disablements, etc. along with input points including their analog values for a permanent record.

The AX-048 printer is designed with a clamshell type easy paper loading system. It is a portable printer for operation from its battery supply, but it can also be used in a permanent desktop installation using the AC mains power supply for operation and battery charging.

The printer will automatically turn off after five (5) minutes if not used to save the battery power. This feature can be turned off if the printer is to be used in a permanent desktop installation. The diagram to the right shows the main operator features.



Features

- Portable, Ideal for Service Testing
- Battery or AC Option
- Isolated RS-232 Interface
- Compact, Light Weight
- 30 Character Width Printing
- Battery Standby Support
- Easy Paper Loading (Clamshell design)
- Same Paper Roll as Used on AX-012

Specification

Printer Type	Thermal, graphical
Dimensions	150 D x 110 W x 70 H (max height)
Power Supply	120V AC via the supplied adaptor
Operating Temperature	5°C to 50°C, 10-85% RH (Non-condensing)
Storage Temperature	-20°C to 50°C, 10-90% RH (Non-condensing)
Printer Resolution	384 dots per line, 8 dots / mm
Sensors	Door closed, paper out
Paper Roll	Thermal, 58mm W, 50mm D
Power Save Mode	Automatic switch off - If the printer is not used for 5-minutes to save battery life. This feature can be turned off.

Order Codes and Options

AX-048	Desktop Thermal Printer c/w PSU, battery and leads.
	Ordering Information for spares:
AX-008	Thermal Printer Roll (Pack of 10)
AX-035	Rechargeable battery pack
AX-036	Rubber boot and belt kit
AX-037	Spare PSU and Power Lead

Low Frequency Audible Horn

The GHLF is a high quality, low profile, low frequency audible appliance that offers a dependable audible alarm with a low current draw. The GHLF is ideal for any occupancy that requires notification appliances.

The GHLF horn offers a 520 Hz square wave, temporal 3 tone. A jumper selection is available for normal or loud decibel tone. A temporal 4 pattern is available when used with the Gentex GTSM Synchronization Control Module.

The GHLF is shipped with a standard 4" metal mounting plate which incorporates the popular SuperSlide® feature that allows the installer to easily test for supervision. The product also features a locking mechanism which secures the product to the bracket without any screws showing.

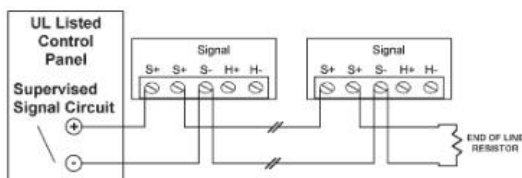
The GHLF also features the patented Checkmate® - Instant Voltage Verification feature which allows the installer to check the voltage drop and match it to the blueprint.

The GHLF horn is listed to ANSI/UL 464 and CAN/ULC S525, is listed for use with fire protective systems and is warranted for three years from date of purchase.

NOTES:

- This appliance is not recommended for use on coded or pulsing signaling circuits
- The four pulse temporal pattern (temporal 4) can only be obtained on this product when used in conjunction with the Gentex GTSM synchronization module
- See GTSM control module manual (550-0632, manual issue date (02-01-15) for synchronization module wiring diagrams. GTSM manual can be obtained at www.gentex.com/fire or call Gentex Corporation at 1-800-436-8391.

Wiring Diagram



Model Designations:

R = Red Faceplate

W= White Faceplate

*All units are plain (No lettering)

Features

- 520 Hz Square Wave Temporal 3 Tone
- Super-Slide™ Bracket - Ease of Supervision Testing
- Checkmate™ - Instant Voltage Verification
- Switch Selection for Normal or Loud dBA
- Temporal 4 Available via GTSM Synchronization Module
- Nominal Voltage 24 VDC
- Unit Dimensions: 6-1/8" High x 5-1/2" Wide x 2-5/8" Deep
- Input Terminals 12 to 18 AWG
- Tamperproof Re-entrant Style Grill and Locking Screw
- Faceplate Available in Red or Off-White

Listings and Approvals

- ANSI/UL 464 Listed
- CAN/ULC S525 Listed
- CSFM: Pending

Model Number	Part Number	Nominal Voltage
GHLFW	904-0530-002	24 VDC
GHLFR	904-0531-002	24 VDC

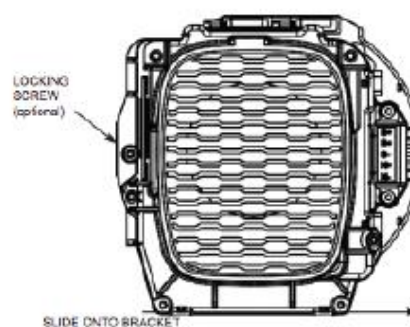
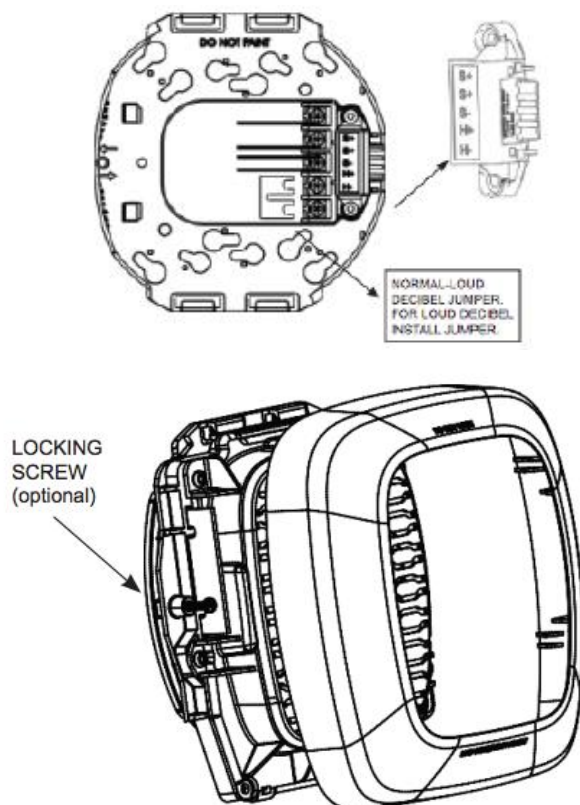
Horn Decibel Levels: 24 VDC Nominal Horn Current Ratings (mA) Horn Current Ratings Over Input Voltage Range of 16-33 V (mA)											
Horn Mode	Minimum SPL @ 10 ft. per	Minimum SPL at 10ft. per	24 VDC Operating	24 VDC Operating	24 VFWR Operating	24 VFWR Operating	Regulated 24 VDC Max.	Regulated 24 VDC Max.	Regulated 24 VFWR Max.	Regulated 24 VFWR Max.	

	ANSI/UL 464 Normal	ANSI/UL 464 (Loud)	Current (Normal)	Current (Loud)	Current (Normal)	Current (Loud)	Operating Current (Normal)	Operating Current (Loud)	Operating Current (Normal)	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	101.1 mA	157.2 mA	163.1 mA	235.2 mA

* Temporal 4 520 Hz measured per ANSI/UL 2075

NOTES:

- Operating temperature: 32° to 120°F (0° to 49°C). The GHLF is not listed for outdoor use.
- For nominal and peak current across ANSI/UL regulated voltage range for filtered DC power and unfiltered (FWR [Full Wave Rectified]) power, see installation manual.
- 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. 1 RMS current ratings are per ANSI/UL average RMS method. ANSI/UL max current rating is the maximum RMS current within the listed voltage range (16-33VDC for 24VDC units). For unfiltered FWR ratings, see installation manual.



Gentex Checkmate® 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.

Gentex Super-Slide® Mounting Bracket:

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

Specification

The alarm horns shall be Gentex model GHLF. The appliance shall be listed with Underwriters Laboratories (ANSI/UL) for use with fire protective signaling systems (ANSI/UL 464) and with CAN/ULC S525 with intended use in fire alarm systems. The GHLF will produce a peak sound output of 88.3 dBA as measured in an anechoic chamber. The appliance shall be polarized to allow for electrical supervision of the system wiring. The unit shall be provided with a mounting bracket with terminals and barriers for input/output wiring and be able to mount to a single gang or double gang box or double workbox without the use of an adapter plate. The GHLF shall be mounted on the wall or the ceiling. The unit shall have an input voltage range of 16-33 volts with either direct current or full wave rectified power at 24 VDC. The appliance shall be capable of testing supervision without disconnecting wires, verify voltage without removing unit and be capable of mounting to a surface back box.