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Thank you for using our products.

**INSTALLATION INSTRUCTIONS
 MULTITONE APPLIANCES
 MT-12/24, MT4-12/24**

Use this product according to this instruction manual. Please keep this instruction manual for future reference.

GENERAL:

Multitone Appliances are UL Listed for Fire Protective Service and for General Signaling Service. They are listed for both indoor and outdoor use with the backboxes specified in these instructions. (See Mounting Options A,B,C,D,E,F,G for MT models and H for MT4 models). Multitone Appliances can be field set to produce any one of eight commonly used alarm tones. Sound output can be field set to provide either HIGH (HI) dBA or STANDARD (STD) dBA sound output level. Multitone Appliances can be field set for either 12VDC or 24VDC operation and are designed for use with either filtered or unfiltered (full-wave-rectified) input voltage. All inputs are polarized for compatibility with standard reverse polarity supervision of circuit wiring by a Fire Alarm Panel.

NOTE: All **CAUTIONS** and **WARNINGS** are identified by the symbol . All warnings are printed in bold capital letters.

WARNING: PLEASE READ THESE INSTRUCTIONS CAREFULLY BEFORE USING THIS PRODUCT. THE MULTITONE APPLIANCE MUST BE FIELD SET TO THE DESIRED INPUT VOLTAGE, dBA SOUND OUTPUT LEVEL AND ALARM TONE BEFORE THEY ARE INSTALLED. THIS IS DONE BY PROPERLY INSERTING A JUMPER PLUG AND ADJUSTING A FOUR POSITION SWITCH IN ACCORDANCE WITH THESE INSTRUCTIONS. INCORRECT SETTINGS WILL RESULT IN IMPROPER PERFORMANCE AND MAY DAMAGE THE PRODUCT, AND COULD RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

SPECIFICATIONS:

<i>Table 1: dBA and Current Ratings For Multitone Appliances</i>										
Tone	Input Current AMPS @ 24VDC		Input Current AMPS @ 12VDC		Typical Anechoic dBA at 10 Feet		Rated Reverberant dBA At 10 Feet Per UL 464			
	HI	STD	HI	STD	At Nominal Input Voltage		At Minimum Input Voltage		At Nominal Input Voltage	
					HI	STD	HI	STD	HI	STD
Horn	0.040	0.023	0.100	0.020	101	95	88	82	91	85
Bell	0.014	0.012	0.031	0.010	94	89	82	75	85	79
March Time Horn	0.040	0.023	0.100	0.020	101	95	85	79	88	82
Code 3 Horn	0.040	0.023	0.100	0.020	101	95	85	75	85	79
Code 3 Tone	0.028	0.017	0.060	0.015	97	92	79	75	82	75
Slow Whoop	0.048	0.026	0.100	0.025	101	96	88	82	88	82
Siren	0.036	0.023	0.082	0.020	100	95	85	82	88	82
HI/LO	0.020	0.014	0.044	0.012	95	90	82	79	85	79

Add 25% more input current when operating the unit at maximum input voltage (15.6VDC for 12VDC models, 31VDC for 24VDC models).

Anechoic dBA is measured on axis in a non-reflective (free field) test room using fast meter response. For peak dBA (measured with peak meter response), add 5 dBA to typical anechoic values shown in Table 1. Reverberant dBA is a minimum UL rating based on sound power measurements in a reverberant test room.

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Rated Input Voltage: Multitone Appliances set for 24VDC operation are UL Listed to operate over a voltage range from 18VDC to 31VDC and Multitone Appliances set for 12VDC operation are UL Listed to operate over a voltage range of 9VDC to 15.6VDC using filtered DC or unfiltered FWR input voltage.

Note: FWR voltages are measured with DC volt meter. Multiply FWR voltage by 1.11 to convert to VRMS.

⚠ WARNING: MAKE SURE THAT THE TOTAL CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES AND SIGNALING CIRCUITS DOES NOT EXCEED THEIR RATED CURRENT. OVERLOADING THESE SOURCES COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY.

When calculating the total current: use Table 1 to determine the "Input Current" for an individual Multitone then multiply this value by the total number of appliances; be sure to add the current for any other appliances powered by the same source and include any required safety factors.

⚠ WARNING: MAKE SURE THAT ALL FUSES USED ON SIGNALING CIRCUITS ARE RATED TO HANDLE THE MAXIMUM INRUSH OR PEAK CURRENT FROM ALL APPLIANCES ON THOSE CIRCUITS. FAILURE TO DO THIS MAY RESULT IN LOSS OF POWER TO THE SIGNALING CIRCUIT AND THE FAILURE OF ALL APPLIANCES ON THAT CIRCUIT TO OPERATE.

The Multitone audible appliances produce a brief inrush current that lasts for just 2 microseconds but can reach a peak value of 8.0 Amps (11.2 amps for FWR input).

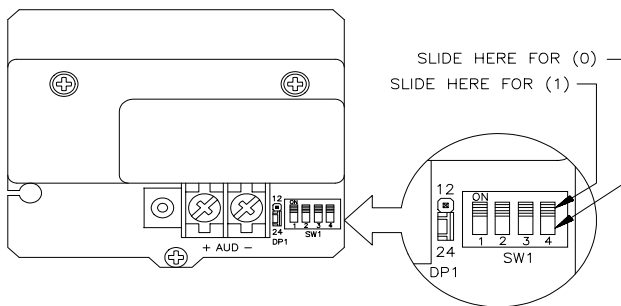
⚠ WARNING: IF MULTITONE APPLIANCES ARE OPERATED WITHIN 15 INCHES OF A PERSON'S EAR, THEY CAN PRODUCE A SOUND PRESSURE LEVEL THAT EXCEEDS THE MAXIMUM 120 dBA PERMITTED BY ADA AND OSHA RULES. EXPOSURE TO SUCH SOUND LEVELS CAN RESULT IN DAMAGE TO A PERSON'S HEARING.

SETTINGS:

The Jumper Plug (DP1) and Switch (SW1) of the Multitone Appliance, shown in Figure 1, are used to set the desired input voltage, dBA sound output level and alarm tone. The factory settings are shown below. Read these instructions carefully before changing any of these factory settings.

Figure 1.

PC Board Layout Showing Location
of Jumper Plug (DP1) and Switch (SW1)



The factory settings are:

24VDC DP1 set on 24

HIGH dBA SW1 POS 1 set on 1

HORN TONE SW1 POS 2, 3, 4 set on 1, 1, 1

STEP 1:

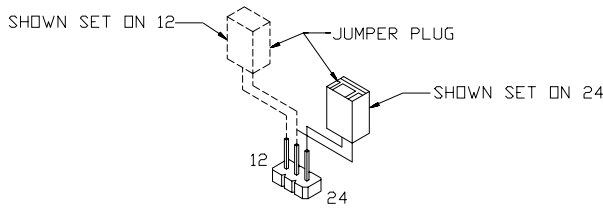
Set desired input voltage and dBA sound output level as follows (Refer to Figures 2 and 3):

Multitone Appliances are field set for input voltage and dBA sound output level by inserting a Jumper Plug (DP1) and adjusting a four position Switch (SW1) as shown in Table 2 and Figures 2 and 3. Use DP1 to select the desired voltage and SW1 Position 1 to select the dBA sound output level.

Input Voltage and Decibel Level	DP1 and SW1 Settings
24 VDC/HIGH dBA:	Set DP1 on 24; set SW1 POS 1 on 1
24 VDC/STD dBA:	Set DP1 on 24; set SW1 POS 1 on 0
12 VDC/HIGH dBA:	Set DP1 on 12; set SW1 POS 1 on 1
12 VDC/STD dBA:	Set DP1 on 24; set SW1 POS 1 on 1

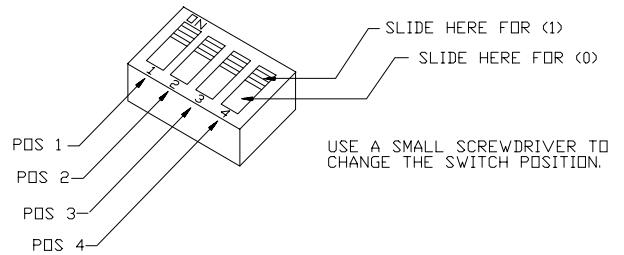
(Factory Setting)

Figure 2.
Jumper Plug (DP1) Settings



(Use Needle Nose Pliers to Lift and Properly Insert the Jumper Plug)

Figure 3.
Switch (SW1) Settings



⚠ WARNING: DO NOT APPLY 24VDC INPUT IF THE JUMPER PLUG (DP1) IS SET ON 12. THIS CAN DAMAGE THE UNIT. DOUBLE CHECK THE JUMPER PLUG (DP1) AND SWITCH (SW1) SETTINGS TO MAKE SURE THEY ARE CORRECT. IMPROPER SETTINGS CAN DAMAGE THE UNIT OR RESULT IN NO SOUND OUTPUT OR A dBA SOUND OUTPUT LEVEL THAT IS BELOW CODE REQUIREMENTS FOR PUBLIC MODE FIRE PROTECTION. THIS COULD RESULT IN PROPERTY DAMAGE, SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

STEP 2:

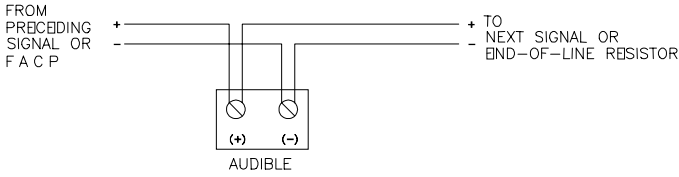
Set desired alarm tone as follows (refer to Figure 3 and Table 3).

Multitone Appliances are field set for any one of eight alarm tones by setting a four-position switch (SW1) as shown in Figure 3 and Table 3. Use SW1 POS 2, 3, 4 to select the desired alarm tone (refer to Table 3 below).

Tone	Pattern Description	SW1 Switch Settings		
		POS 2	POS 3	POS 4
Horn	Broadband Horn (Continuous)	1	1	1
Bell	1560 Hz Modulated (0.07 Sec. ON/Repeat)	1	0	1
March Time Horn	Horn (0.25 Sec. ON/0.25 Sec. OFF/Repeat)	0	0	1
Code 3 Horn	Horn (ANSI S3.41 Temporal Pattern)	1	1	0
Code 3 Tone	500 Hz (ANSI S3.41 Temporal Pattern)	0	1	1
Slow Whoop	500-1200 Hz Sweep (4.0 Sec. ON/0.5 Sec. OFF/Repeat)	0	1	0
Siren	600-1200 Hz Sweep (1.0 Sec.ON/Repeat)	1	0	0
HI/LO	1000/800 Hz (0.25 Sec. ON/Alternate)	0	0	0

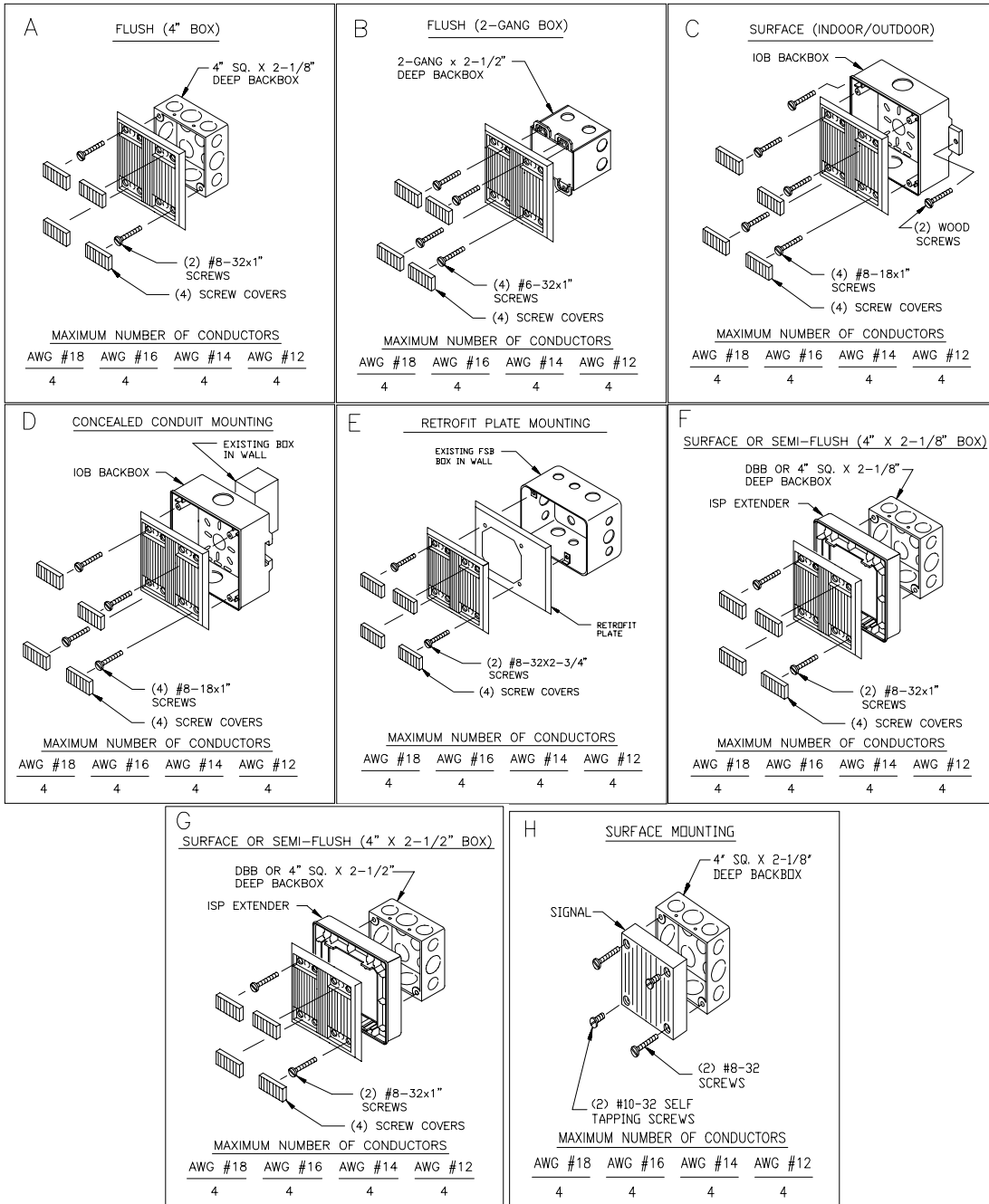
WIRING INFORMATION:

Figure 4.
Multitone Appliance Wiring Diagram



- 1) Strip leads 3/8 inches and connect to screw terminals. Multitone Appliances have in-out wiring terminals that accepts two #12 to #18 American Wire Gauge (AWG) wires at each screw terminal.
- 2) Break all in-out wire runs on supervised circuits to assure integrity of circuit supervision. The polarity shown in the wiring diagram is for operation of the appliances. The polarity is reversed by the Fire Alarm Control Panel (FACP) during supervision.

MOUNTING OPTIONS:



APPLICATION NOTES:

⚠ CAUTION: If sheathed multiconductor cable or 3/4" conduit fittings are used, check that installed product has sufficient clearance and wiring room prior to installing backboxes and conduit.

1. Multitone Appliances can be flush mounted to a standard 4 inch square by 2-1/8 inch deep electrical box (Figure A) or a standard 2-gang by 2-1/2 inch minimum deep electrical box (Figure B).
2. Select largest backbox shown in Mounting Options where possible, to provide additional wiring room for easy installation.
3. Conduit entrance to backboxes should be selected to insure sufficient wiring clearance for installed equipment. When extension rings are required, conduit should enter through backbox, not extension ring. Use Steel City #53151/1-1/2" deep or #53171/2-1/8" deep extension rings or equal with same area cut out in back.
4. The MT-12/24 model can also be surface mounted to Wheelock's Indoor/Outdoor Backbox (Model IOB) for indoor/outdoor use (Figure C). The IOB is **NOT** intended for use with the MT4-12/24.
5. The MT-12/24 model is supplied with four snap-in covers to hide the mounting holes and provide an attractive installation. The snap-in covers are interchangeable and have slots on each end so they can be removed if necessary (by prying them up with a thin blade screwdriver). To insert snap-in cover, slide one side partially into mounting hole recess; align the cover so that snap-in cover and grille are parallel to each other (not tilted) and snap cover into place.
6. The IOB surface backbox has 1/2 inch conduit knockouts on two sides. It has a variety of knockouts on the back for mounting it to recessed electrical boxes and for wire entrances (Figure D). It can also be mounted to a surface with the two mounting ears that are supplied. The ears slide into slots on the back of the box. Use appropriate anchors for the wood screws that are supplied with the box (if necessary).
7. For outdoor use, the IOB includes a prefastened gasket and four hole plugs. Make sure the condensation drain holes on the box face down and that the box is vertical to permit drainage of any moisture. Use the mounting ears to secure the box (do not use the back knockouts). Use the hole plugs to seal the unused mounting holes on the Multitone grille (press them in securely from the back side of the grille). Mount the unit to the IOB with the four #8-18 screws supplied with the box.
8. The Code 3 Horn and Code 3 Tone incorporate the temporal pattern specified by ANSI/NFPA/ISO for standard emergency evacuation signaling. They should be used only for fire evacuation signaling and not for any other purpose.
9. The Horn and Bell Tones can be used on coded systems with a minimum On-Time of 1/4 second. All other tones are recommended for use only on continuous (non-coded) systems.

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NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: 1) Reorient or relocate the receiving antenna, 2) Increase the separation between the equipment and receiver, 3) Connect the equipment into an outlet on a circuit different from that to which the receiver is connected, and 4) Consult the dealer or an experienced radio/TV technician for help.

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