


Thank you for using our products.

**INSTALLATION INSTRUCTIONS
 AMT MULTITONE APPLIANCES
 AMT-12/24**

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

GENERAL:

AMT Multitone Appliances are UL Listed under Standard 464 for Audible Signal Appliances for Fire Protective Service and for General Signaling Service. They are also ULC Listed under Standard CAN/ULC-S525-07 for Audible Signal Appliances for Fire Alarm Systems. 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). Cooper Notification's AMT Appliances are unique multitone alarm appliances with separate input terminals for each sound. They are the ideal choice for Halon Protection Systems and emergency signaling systems where distinctive multiple alarm conditions are required. Eight groups of three self-prioritized sound outputs are provided with separate electrically isolated input terminals for each sound (see Table 2 and 5 for sound selections). Sound output can be field set to provide either HIGH (HI) dBA or STANDARD (STD) dBA sound output level. AMT 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 (FWF) input voltage. All inputs are polarized for compatibility with standard reverse supervision of circuit wiring by Fire Alarm Control Panel (FACP).

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. FAILURE TO COMPLY WITH ANY OF THE FOLLOWING INSTRUCTIONS, CAUTIONS AND WARNINGS COULD RESULT IN IMPROPER APPLICATION, INSTALLATION AND/OR OPERATION OF THESE PRODUCTS IN AN EMERGENCY SITUATION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

NOTE: All Canadian installations should be in accordance with the Canadian Standard for the Installation of Fire Alarm Systems, CAN/ULC-S524 and the Canadian Electrical Code, Part 1. Final acceptance is subject to authorities having jurisdiction.

WARNING: THE AMT MULTITONE APPLIANCES 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, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

SPECIFICATIONS:

Table 1: dBA Ratings for AMT Multitone Signal						
Tone	Typical Anechoic dBA at 10 Feet per CAN/ULC S525-07		Rated Reverberant dBA At 10 Feet Per UL 464			
	At Nominal Input Voltage		At Minimum Input Voltage		At Nominal Input Voltage	
	HI	STD	HI	STD	HI	STD
Horn	99	93	88	79	88	82
Bell	93	88	82	75	85	79
March Time Horn	98	92	85	79	88	82
Code-3 Horn * (ANSI S3.41 Temporal Pattern)	99	93	85	75	85	79
Code-3 Tone * (ANSI S3.41 Temporal Pattern)	95	89	85	79	88	82
Slow Whoop	99	94	82	75	85	79
Siren	97	92	82	75	82	75
HI/LO	93	85	82	75	85	79
Vibrating Chimes	89	83	79	73	82	75

* - For ULC applications, only Code 3 Horn and Code 3 Tone are required to meet the ULC minimum of 85 dBA and the audible signal temporal pattern mandated by the National Building Code of Canada.

Tone	Tone Description	Maximum RMS Current (AMPS)							
		24VDC		24VRMS		12VDC		12VRMS	
		HI	STD	HI	STD	HI	STD	HI	STD
Horn	Broadband Horn (Continuous)	0.108	0.043	0.092	0.050	0.210	0.058	0.230	0.103
Bell	1560 Hz Modulated (0.07 Sec. ON/Repeat)	0.057	0.026	0.040	0.028	0.117	0.031	0.150	0.057
March Time Horn	Horn (0.25 Sec. ON/0.25 Sec. OFF/Repeat)	0.108	0.035	0.092	0.050	0.210	0.059	0.229	0.091
Code 3 Horn	Horn (ANSI S3.41 Temporal Pattern)	0.108	0.043	0.092	0.050	0.210	0.057	0.241	0.093
Code 3 Tone	500 Hz (ANSI S3.41 Temporal Pattern)	0.060	0.030	0.051	0.031	0.168	0.052	0.216	0.100
Slow Whoop	500-1200Hz Sweep (4.0 Sec. ON/0.5 Sec. OFF/Repeat)	0.112	0.044	0.092	0.050	0.182	0.056	0.212	0.110
Siren	600-1200Hz Sweep (1.0 Sec. ON/Repeat)	0.102	0.038	0.078	0.043	0.177	0.055	0.197	0.107
HI/LO	1000/800 Hz (0.25 Sec. ON/Alternate)	0.064	0.030	0.049	0.034	0.131	0.028	0.186	0.088
Vibrating Chime	700Hz (1.0 Sec. Decay/Repeat)	0.041	0.020	0.044	0.029	0.090	0.028	0.108	0.042

24VDC	Horizontal	-3dBA: 35 degrees left, 35 degrees right
Vertical		-3dBA: 35 degrees upward, 35 degrees downward
		-6dBA: 65 degrees upward, 55 degrees downward

⚠ WARNING: CHECK THE MINIMUM AND MAXIMUM OUTPUT OF THE POWER SUPPLY AND STANDBY BATTERY AND SUBSTRACT THE VOLTAGE DROP FROM THE CIRCUIT WIRING RESISTANCE TO DETERMINE THE APPLIED VOLTAGE TO THE SIGNALING APPLIANCE.

⚠ WARNING: FOR UL/ULC APPLIANCES THESE APPLIANCES WERE TESTED TO THE OPERATING VOLTAGE LIMITS OF 16-33 VOLTS FOR 24V APPLICATIONS AND 8.0-17.5 VOLTS FOR 12V APPLICATIONS USING FILTERED (DC) OR UNFILTERED FULL-WAVE-RECTIFIED (FWR). DO NOT APPLY 80% AND 110% OF THESE VOLTAGE VALUES FOR SYSTEM OEPRATION.

⚠ WARNING: MAKE SURE THAT THE TOTAL RMS CURRENT REQUIRED BY ALL APPLIANCES THAT ARE CONNECTED TO THE SYSTEM'S PRIMARY AND SECONDARY POWER SOURCES, NAC CIRCUITS, OR WHEELOCK'S POWER SUPPLIES DO NOT EXCEED THE POWER SOURCES' RATED CAPACITY OR THE CURRENT RATINGS OF ANY FUSES ON THE CIRCUITS TO WHICH THESE APPLIANCES ARE WIRED. OVERLOADING POWER SOURCES OR EXCEEDING FUSE RATINGS COULD RESULT IN LOSS OF POWER AND FAILURE TO ALERT OCCUPANTS DURING AN EMERGENCY, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

When calculating the total currents: Use Table 2 to determine the highest value of "RMS Current" for an individual AMT (across the expected operating voltage range of the AMT's), then multiply these values by the total number of AMT's; be sure to add the currents for any other appliances powered by the same source and include any required safety factors.

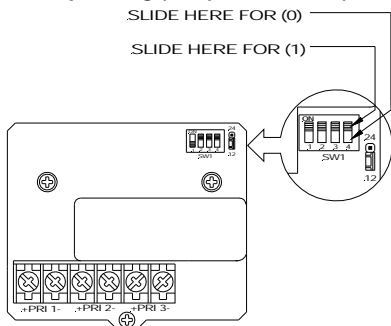
If the peak current exceeds the power supplies' peak capacity, the output voltage provided by the power supplies may drop below the listed voltage range of the appliances connected to the supply and the voltage may not recover in some types of power supplies. For example, an auxiliary power supply that lacks filtering at its output stage (either via lack of capacitance and/or lack of battery backup across the output) may exhibit this characteristic.

The AMT 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).

AMT MULTITONE SETTINGS:

The Jumper Plug (DP1) and Switch (SW1) of the AMT Multitone Appliances, shown in Figure 1, are used to set the 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 = 1

Priority 1 (PRI 1) HORN TONE:
Priority 2 (PRI 2) BELL TONE:
Priority 3 (PRI 3) SIREN TONE: } SW1 POS 2, 3, 4 = 1, 1, 1

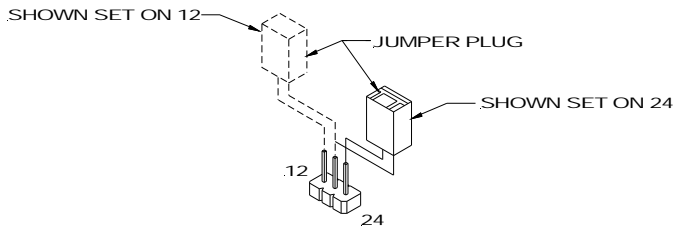
STEP 1:

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

AMT 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 4 and Figures 2 and 3. Use DP1 to select the desired voltage and SW1 Position 1 to select the dBA sound output level.

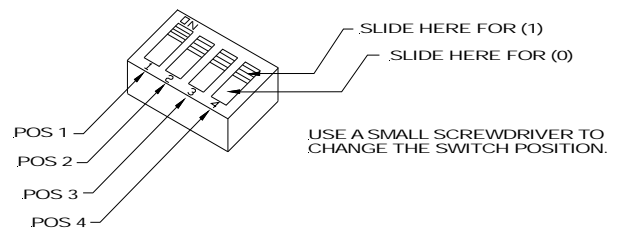
Input Voltage and Decibel Level		DP1 and SW1 Settings	
24 VDC/HIGH	dBA:	Set DP1 on 24; set SW1 POS 1 on 1	(Factory Setting)
24 VDC/STD	dBA:	Set DP1 on 24; set SW1 POS 1 on 0	
12 VDC/HIGH	dBA:	Set DP1 on 12; set SW1 POS 1 on 1	
12 VDC/STD	dBA:	Set DP1 on 24; set SW1 POS 1 on 1	

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 THE MINIMUM CODE REQUIREMENTS FOR PUBLIC MODE FIRE PROTECTION, WHICH COULD RESULT IN PROPERTY DAMAGE AND SERIOUS INJURY OR DEATH TO YOU AND/OR OTHERS.

STEP 2:

Set desired alarm tone as follows (refer to Figure 3 and Table 5).

AMT Multitone Appliances are field set for any one of eight groups of self-prioritized tones by setting a four-position switch (SW1) as shown in Figure 3 and Table 4. Use SW1 POS 2, 3, 4 to select the desired alarm tone (refer to Table 5 below).

Tones			Switch Settings		
PRI 1	PRI 2	PRI 3	POS 2	POS 3	POS 4
Horn	Bell	Siren	1	1	1
Code 3 Horn	Siren	Vibrating Chime	1	0	1
Slow Whoop	March Time Horn	HI/LO	0	0	1
March Time Horn	HI/LO	Vibrating Chime	1	1	0
Code 3 Horn	Bell	Siren	0	1	1
Siren	Horn	Vibrating Chime	0	1	0
Bell	March Time Horn	Siren	1	0	0
Code 3 Tone	HI/LO	Siren	0	0	0

NOTE: The prioritized tones contained in each group is factory pre-set which can not be changed.

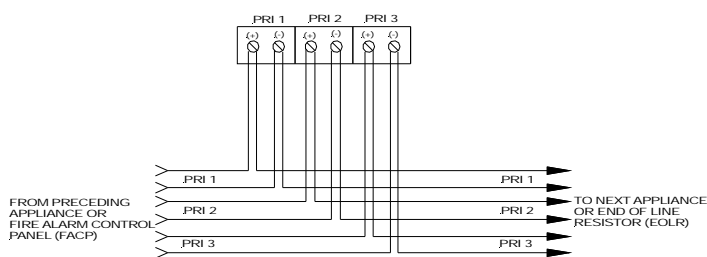
NOTE The Code 3 Horn and Code 3 Tone (set on HIGH dBA) incorporate the temporal pattern specified by ANSI/NFPA for standard emergency evacuation signaling. They should be used only for fire evacuation signaling and not for any other purpose.

The Horn and Bell Tones can be used on coded systems with a minimum On-Time of 1/4 second if the audible and strobe are wired to operate independently. All other tones are recommended for use only on continuous (non-coded) systems.

⚠ WARNING: THE AMT APPLIANCE IS A “FIRE ALARM DEVICE – DO NOT PAINT”.

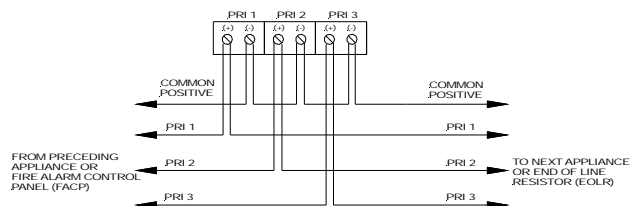
WIRING DIAGRAMS:

Supervised System



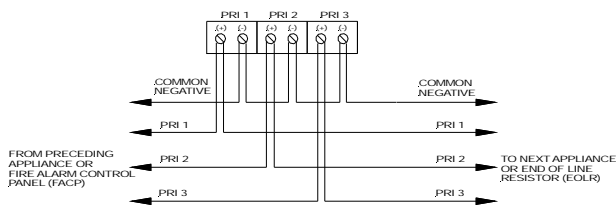
Isolated inputs are provided for independent supervision and actuation of the three audible inputs.

Unsupervised System Common Positive



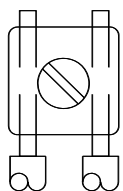
For applications not requiring supervision: connect all positive (+) terminals to the power source. The negative (-) terminal for each appliance will actuate the appliance.

Unsupervised System Common Negative



For applications not requiring supervision: connect all negative (-) terminals to the power source. The positive (+) terminal for each appliance will actuate the appliance.

In case of simultaneous inputs, the three audible outputs are self-prioritized as follows: 1st priority = PRI 1; 2nd priority = PRI 2; 3rd priority = PRI 3. Leave any unused inputs disconnected.



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

NOTE: Wiring method shall be in accordance with CSA C22.1, Canadian Electrical Code, Part 1, Safety Standard for Electrical Installations, Section 32.

MOUNTING PROCEDURES:

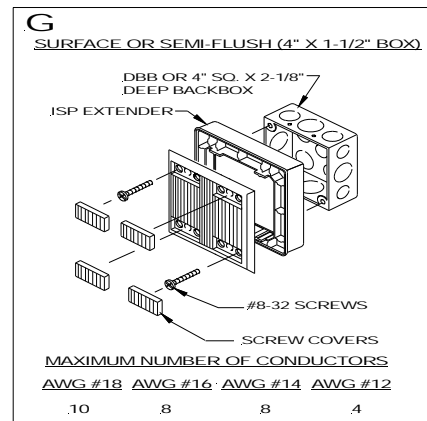
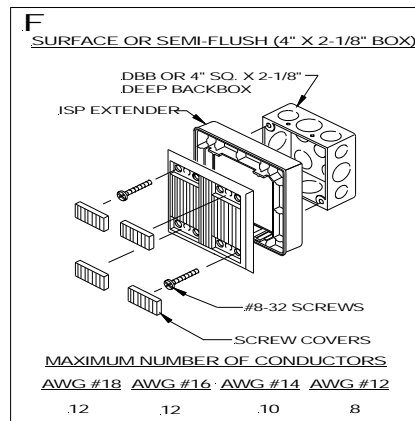
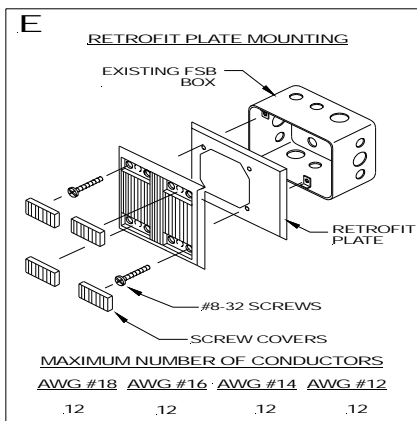
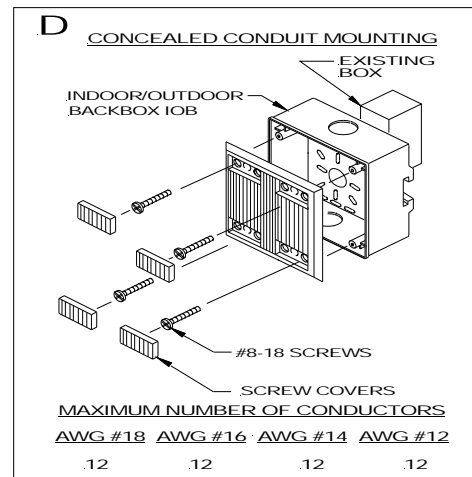
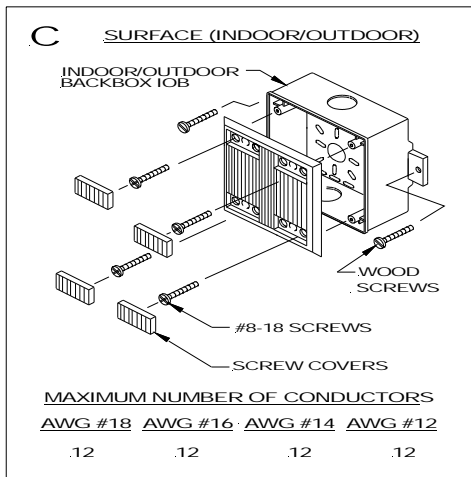
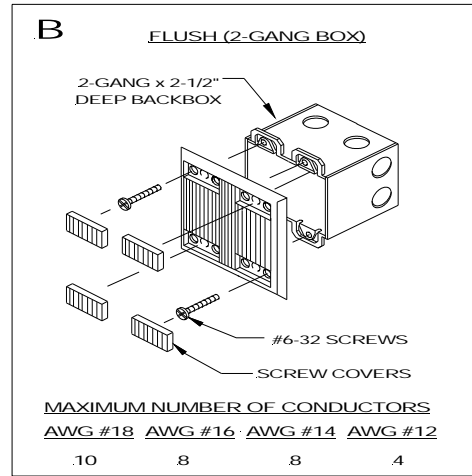
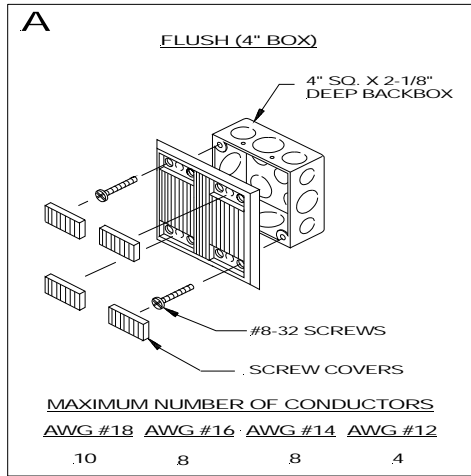
CAUTION: If sheathed multiconductor cable or 3/4" conduit fittings are used, check that installed product has sufficient clearance and wiring room prior to installing backboxes and conduit.

1. AMT 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 AMT-12/24 model can also be surface mounted to Cooper Notification's Indoor/Outdoor Backbox (Model IOB) for indoor/outdoor use (Figure C).
5. The AMT-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. 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 AMT 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. All models are UL Listed for indoor and outdoor use with a temperature range of -40°F to +150°F (-40°C to +66°C) and maximum humidity of 98% ± 2% RH.

MOUNTING OPTIONS:


CAUTION: The following figures show the maximum number of field wires (conductors) that can enter the backbox used with each mounting option. If these limits are exceeded, there may be insufficient space in the backbox to accommodate the field wires and stresses from the wires could damage the product.


Although the limits shown for each mounting option comply with the National Electrical Code (NEC), Cooper Notification recommends use of the largest backbox option shown and the use of approved stranded field wires, whenever possible, to provide additional wiring room for easy installation and minimum stress on the product from wiring.



AMT Appliances can be wall or ceiling mounted.

 **WARNING: IF AMT 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.**

 **WARNING: NFPA CODES REQUIRE SIGNALING APPLIANCES TO BE SUPERVISED. CHECK TO BE CERTAIN THAT UNSUPERVISED SIGNALING APPLIANCES DO NOT VIOLATE ANY APPLICABLE CODES.**

 **CAUTION:** Check the installation instructions of the manufacturers of other equipment used in the system for any guidelines or restrictions on wiring and/or locating Notification Appliance Circuits (NAC) and notification appliances. Some system communication circuits and/or audio circuits, for example, may require special precautions to assure electrical noise immunity (e.g. audio crosstalk).

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.

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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