New Product Video for 23mm IEC 60601-1-8 Medical Alarms

Mallory has released the product video for our 23 mm MSS & MSW Series of IEC 60601-1-8 medical alarms. Mallory introduced our first 2 medical alarm models in 2009, and now there are over 900 models available covering just about every configuration that a medical equipment designer could think of.

The new **MSW Series** alarms are qualified by UL & CUL to IEC 60601-1-8 **AMD2 (2020)** Annex G which means that they utilize the IEC provided .WAV **sound** files. As an enhancement, the MSW Series models have an extended operating **voltage** range spanning from **2.7 to 5.5 Vdc** which covers lower voltage application needs.

The **compact** MSW Series medical alarms utilize a speaker in a **23 x 13 mm housing**, and emit **90 dB** @ 10 cm. Models are available which have **one** medical priority tone, **three** medical priority tones, and **two** medical priority tones along with a third **2500 Hz tone** which can be used for non-medical sounds. **Examples** of models with one, two, & three medical priority tones include:

- MSW5PH (Perfusion Melody; High Priority Tone)
- MSW5P (Perfusion Melody; High, Medium, & Low Priority Tones)
- MSW5PMHCT (Perfusion Melody, High & Medium Priority Tones, 2500 Hz Continuous Tone)

Mallory's MSW Series is not the only one approved to IEC 60601-1-8 AMD2 (2020) because the **MSS Series** also has models qualified to AMD2 (2020) including: P/N MSS300R (mounted speaker only), P/N MSS5M0 (continuous tone), and the many **General** tone MSS models. So, if a medical application is **currently** using one of these MSS models, the same model number can be used when moving to AMD2 (2020).

However, if the application is currently using a MSS Series model with an Appendix F melody such as: *Cardiac, Perfusion, Ventilation, Oxygen, Temp/Energy, Drug/Fluid, or Equipment/Supply*, a substitution is needed to the **equivalent** MSW model when qualifying to AMD2 (2020) because Appendix F is discontinued for AMD2 (2020). The good news is that Mallory's MSW Series uses the identical PC pin layout & control scheme as the MSS Series, so the corresponding MSW model will **drop** right into the application without any changes needed. For example, if the medical application is currently using P/N MSS5C (three priority cardiac tones), the MSW substitute is P/N MSW5C (three priority cardiac tones using the IEC provided sound files). A side-by-side **comparison** will show they are **equivalent** in size, electronic control, and sound level.

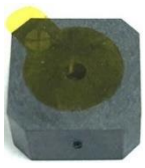
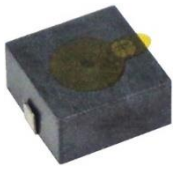
To summarize, three **key** differences between Mallory's MSS & MSW Series are:

1. Sound Timbre:
    - The MSW Series models utilize the IEC provided sound files.
    - The MSS Series models issue tones that are generated internally.
    - To hear the difference for the perfusion melody, listen to the MSS5P Sound versus the MSW5P Sound.
2. Operating Voltage Range:
    - The MSW Series has an extended voltage range of 2.7 to 5.5 Vdc.
    - The MSS Series voltage range is 4.5 to 5.5 Vdc.
3. IEC 60601-1-8 Qualifications:
    - The MSW Series is qualified to IEC 60601-1-8 AMD2 (2020).
    - The MSS Series General tone models (along with P/N's MSS300R & MSS5M0) are qualified to both IEC 60601-1-8 AMD1 & AMD2 (2020).
    - The MSS Series melody tone models (Annex F) are qualified to IEC 60601-1-8 AMD1.
    - Note that the IEC 60601-1-8 qualification **status** for any Mallory model is listed on the individual model specification sheet, and also in the medical alarm product table.

Mallory's IEC 60601-1-8 Medical Alarms are **manufactured** in Indianapolis, Indiana with **lead-times** of stock to 4 weeks. All models are UL and CUL approved, and individual alarms are serialized and tested **100%** to IEC 60601-1-8.

Mallory's Piezo Indicators (DC Voltage Buzzers)

Piezo buzzers (AKA piezo **indicators**) contain circuitry, so only **DC voltage** is needed to activate the alarm sound. Piezo buzzers utilize a piezoelectric transducer as the sounder element. An alternate technology, electromagnetic buzzers, employs a solid metal disc that is flexed by an internal electro-magnet. Most **SMT** buzzers utilize electromagnetic technology because it produces loud sound levels in small sizes, but Mallory does offer two excellent **piezo** models in an SMT Package that have very low current draw.

ASI09N40MTRQ (New)			**ASI12N35MTRQ**		
Sound Level	81 dB @ 30 cm @ 5 Vdc		Sound Level	81 dB @ 30 cm @ 12 Vdc	
Voltage	2.5 to 5.5 Vdc		Voltage	3 to 15 Vdc	
Freq.	4 kHz		Freq.	3.5 kHz	
Current	2 mA @ 5 Vdc		Current	10 mA @ 12 Vdc	
Size	10.5 x 10.5 x 5.5 mm		Size	14 x 14 x 7.3 mm	

By far, the most common package style for board level piezo buzzers is with **PC pins**. Mallory offers small size models such as P/N PK-11N40PQ (77 dB; 12 x 5.5 mm), and larger models such as P/N PK-35H29P-6VQ (114 dB; 42 x 16 mm). In between are over **85** part numbers that have different sound types, sound levels, sound frequencies, sizes, and other characteristics such as being **sealed,** or combining sound & **LED's** in a single package (see P/N PK-12N40PEDRQ).

One series that hits the sweet spot for size & sound level is Mallory's **MSR Series**. These compact 23 x 11 mm buzzers have extremely high sound levels, and possess an operating and storage temperature range of - 40 to 85 °C. The sound frequency is 3.9 kHz, and they are used in a variety of industrial, medical, and transportation **applications**.

Part No.	Sound Type	Voltage Range	Sound Level (@ 30 cm)	Max Current Level
Medium Sound Level Models				
MSR320R	Continuous	3 to 20 Vdc	73 to 86 dB	16 mA
Loud Sound Level Models				
MSR516NR	Continuous	5 to 16 Vdc	90 to 98 dB	14 mA
MSR516NPR	Fast Pulse	5 to 16 Vdc	86 to 101 dB	12 mA
MSR516NJR	Slow Pulse	5 to 16 Vdc	86 to 101 dB	12 mA
Loud / Low Voltage Models				
MSR205NR	Continuous	2 to 5 Vdc	81 to 91 dB	10 mA
MSR205NPR	Fast Pulse	2 to 5 Vdc	80 to 90 dB	10 mA
MSR205NJR	Slow Pulse	2 to 5 Vdc	80 to 90 dB	10 mA
Note: For the **Sealed** model with a wash label, Change the suffix from "R" to "SR" For Example, P/N MSR516NSR is sealed on the back and has a wash label on the front				

Another **notable** low voltage piezo buzzer is P/N MSO206NR. This model has an **extra-loud** sound level of **96** to **103 dB** @ 30 cm over the voltage range of 2 to 6 Vdc. The sound frequency is 3.5 kHz, and it has a package size of 23 x 14 mm. P/N MSO206NR is **unmatched** in the industry for sound level, low voltage operation, and its small size. This model is also available with wires under P/N MSO206NLR.

Mallory's **MSO & MSR Series** of 23mm board level alarms are **manufactured** in Indianapolis, Indiana with lead-times of stock to 4 weeks. These are the highest **quality**, highest **performance,** and lowest **lead-time** buzzers on the market.