

# INSTALLATION AND MOUNTING MANUAL

## HyperSpike<sup>®</sup> MA-1 and MA-2





**This manual contains information that is proprietary to Ultra Electronics – USSI. It is intended solely for the education and use of parties operating and maintaining the equipment described herein.**

## 1.0 INTRODUCTION

The MA-1 and MA-2 product families consist of single-channel and multi-channel units. All versions are available in 5-, 3-, 2-, and 1-sided configurations.

The MA-1 and MA-2 series speaker systems are designed for indoor or outdoor wet applications. These speakers produce up to 360 degrees of acoustic energy and excel in high ambient noise environments. They have an operation temperature range of -20°C to 60°C. Select speakers meet UL Standard 1480A (Speakers for Commercial and Professional Use) and Hazardous Location Class I Division 2.

90000A-800-00-L

**CERTIFICATION:**

N/A – Uncertified versions

L – 1480A and Class I Division 2, Group A, B, C, and D certified  
(Not available for 90162A or 90163A)

**COLOR CODE:**

02 – Tan

04 – Gray

**CONFIGURATION:**

801 – 5 sided

802 – 3 sided

803 – 2 sided

804 – 1 sided

**PRODUCT:**

90105A – MA-1 Single-Channel

90223A – MA-1 Multi-Channel

90162A – MA-1 Connectorized

90080A – MA-2 Single-Channel

90224A – MA-2 Multi-Channel

90163A – MA-2 Connectorized

## Specifications:

Product	dB SPL (Peak @ 1m)	dB SPL (Max @ 1m)	Usable Range (Feet @ 80dB)
MA-1	143	135	1969
MA-2	148	140	3280

Table 1: Emitter Head and dB Rating

## Input Voltage:

MA-1 and MA-2 Single/Double Channel: 90 VRMS

Multi-Channel: 41 VRMS per channel

## Impedance / Power Rating:

MA-1 90105A, 90162A	Impedance (per channel)	Power (Watts)	Directionality
-801	5	1600	360
-802	8	960	230
-803	12	640	185
-804	24	320	120
MA-2 90080A, 90163A	Impedance (per channel)	Power (Watts)	Directionality
-801	5	3200	360
-802	8	1920	230
-803	12	1280	185
-804	24	640	120
MA-1/MA-2 Multi Channel 90223A, 90224A	Impedance (per channel)	Power (Watts)	Directionality
-801	6	1600/3200	360
-802	6	960/1920	230
-803	6	640/1280	185
-804	6	320/640	120

Frequency Response: 175 Hz – 6000 Hz

## Weight:

MA-1: 50 lbs.

MA-2: 100 lbs.

## Dimensions:

MA-1: 12.8" DIA X 26.2" H

MA-2: 12.8" DIA X 45.5" H



**CAUTION: EXCEEDING THE MAXIMUM RATINGS OF THE SPEAKER WILL CAUSE EXCESSIVE DISTORTION AND MAY CAUSE PERMANENT DAMAGE TO THE SPEAKER AND ITS INTERNAL COMPONENTS.**

This equipment is suitable for indoor or outdoor wet location use in Class I Division 2, Groups A, B, C, D; or Non-Hazardous locations only.

Temperature Code: T3A



**CAUTION: SOUND LEVEL EXCEEDS 120 dBA.**

## 2.0 MOUNTING



**WARNING: WHEN MOUNTING OUTDOORS, MAKE SURE THAT THE SUPPORT SYSTEM USED HAS THE PROPER WIND LOAD RATING AND COMPLIES WITH LOCAL STANDARDS AND CODES.**

The MA-series comes standard with a mounting adaptor that accepts a 2" diameter pole and has 2 – 3/8 set screws to lock the unit in place. (Figure 1)

- 1) To mount the MA-1/MA-2, slide the mount on the emitter head over a 2" OD pipe (not included).

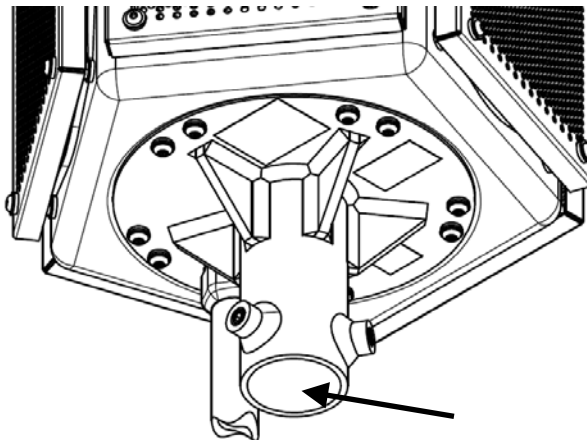


Figure 1: Location of the 2" ID mount

2) Once mounted, tighten the 2 – 3/8 set screws to 30 in-lbs.

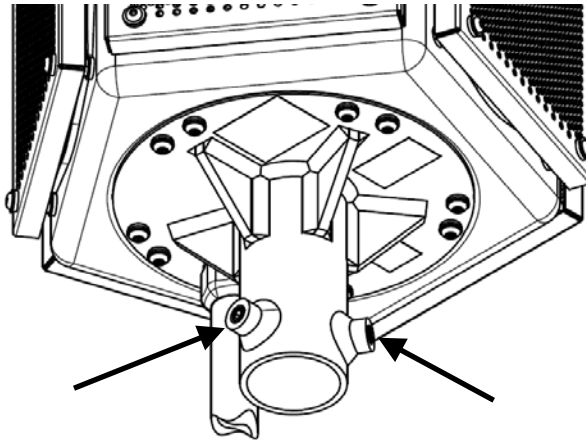


Figure 2: Location of screws to tighten to 2" pipe

### 3.0 FIELD WIRING



**WARNING: EXPLOSION HAZARD. DO NOT DISCONNECT THE EQUIPMENT UNLESS POWER HAS BEEN SWITCHED OFF OR UNLESS THE AREA IS KNOWN TO BE NON-HAZARDOUS.**

#### 3.1. Cable Routing

##### 3.1.1. Single- and Multi-Channel Systems

All single- and multi-channel MA-1 and MA-2 systems come with a 10-foot long 3/4" flexible conduit and 11-foot 14 AWG leads. The connection at the end of the conduit requires an installer-supplied junction box with a rating suitable for the installation environment of the box. See figure 3 for an example.

Route the conduit to a junction box approved by local electrical codes and standards.

Follow your integrator's instructions for installing into an appropriate junction system.

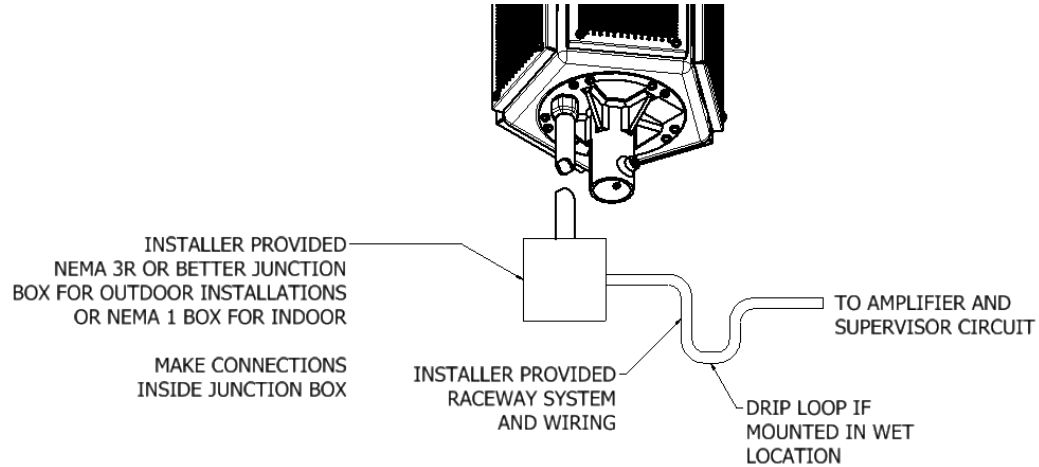


Figure 3: Example of field wiring

### 3.1.2. Connectorized Systems

The connectorized MA-1 and MA-2 systems have a four-pin connector that provides audio to the speaker from the amplifier. See section 3.2.2 below for the pinout of the connector. The mating cable is sold separately.

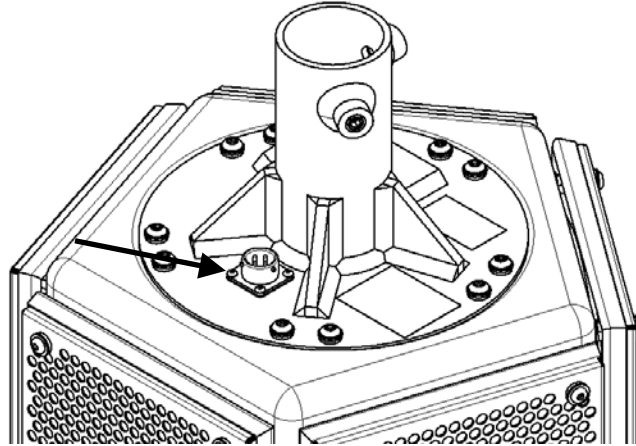


Figure 4: Connector Location



## 3.2. Wiring Diagrams

### 3.2.1. Single- and Multi-Channel Systems

The single-channel MA-1 and double-channel MA-2 have 14 AWG leads coming out of the speaker as depicted below. The red/black and white/green pairs are used for attaching to the customer-supplied amplifier or the optional HyperSpike® amplifier kit, and the blue/yellow and orange/brown pairs are used for a supervision circuit.

The multi-channel MA-1 and MA-2 have a red and black twisted pair of 18 AWG wires coming from each face of the speaker. The total number of pairs coming out of the speaker will depend on the number of faces populated. Each pair has an impedance of 6 ohms and a power rating of up to 300 watts. These leads may be attached to a customer-supplied amplifier or the optional HyperSpike® amplifier kit.

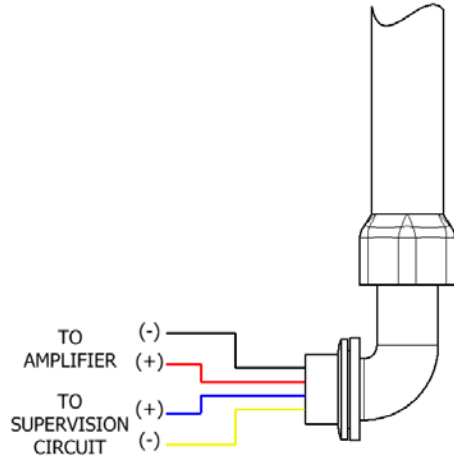


Figure 5: MA-1 Single-Channel

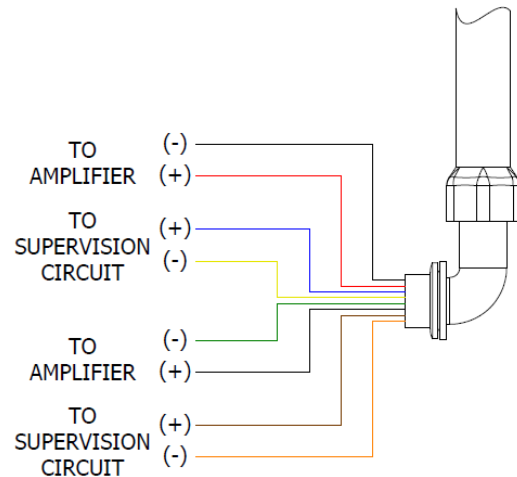


Figure 6: MA-2 Double-Channel

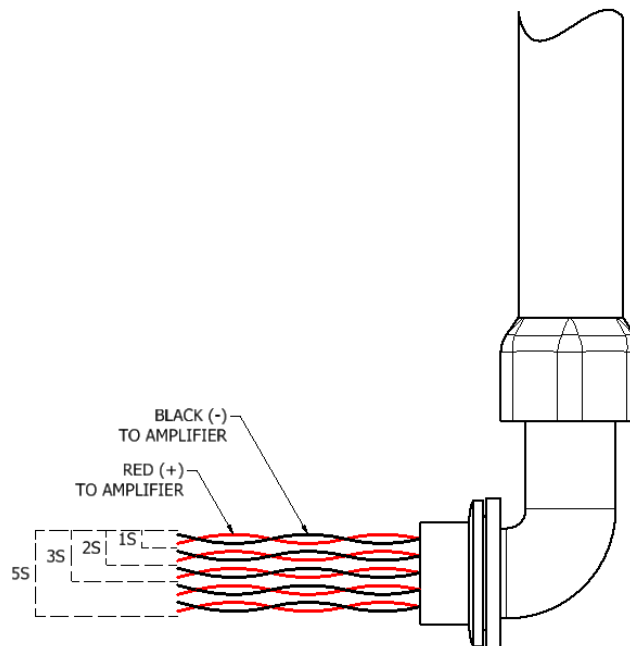
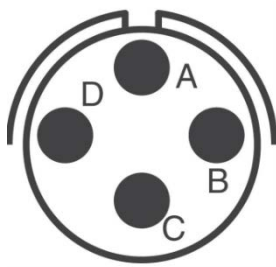


Figure 7: Multi-Channel

### 3.2.2. Connectorized Systems

The connectorized MA-1 and MA-2 have a four-pin connector. Included with the unit is a speaker cable used to connect the unit to a customer-supplied amplifier or the optional HyperSpike® amplifier kit.



Pin A – Channel 1 (-)

Pin B – Channel 1 (+)

Pin C – Channel 2 (-) (MA-2 only)

Pin D – Channel 2 (+) (MA-2 only)

## 4.0 WARRANTY

Ultra Electronics – USSI warrants its products to be free from defects in material and workmanship for a period of one (1) year from the date of shipment from USSI's facility. This warranty is extended to the original purchaser and all subsequent owners, provided a copy of the original dated bill of sale is presented when service is requested under warranty.

If your product should require service, write, phone, fax, or e-mail Ultra Electronics – USSI at:

**Ultra Electronics – USSI**  
**4868 East Park 30 Drive**  
**Columbia City, IN 46725**  
**Phone: 260-248-3665**  
**Fax: 260-248-3510**  
**E-mail: [ServiceDepartment@ultra-ussi.com](mailto:ServiceDepartment@ultra-ussi.com)**  
**URL: [www.ultra-HyperSpike.com](http://www.ultra-HyperSpike.com)**

We will either direct you to a local service agency or provide you with a Return Material Authorization (RMA) number so that you can ship the product to our factory. Do not ship the product to us without first obtaining an RMA number. Place the RMA number on all boxes returned to the factory to prevent equipment from being lost or mishandled. Merchandise returned to us for service under warranty must be accompanied by a copy of the original bill of sale, and shipped prepaid. You are responsible for transporting your product to our factory. We will pay the return shipping charges on all products repaired under warranty.

### 4.1. Failures Not Covered by This Warranty

This warranty covers manufacturing defects. The warranty **DOES NOT** cover:

- 1) Damage caused by accident, misuse, abuse, product modification, or neglect.
- 2) Damage incurred during shipment (you must claim these damages from the carrier).
- 3) Damage resulting from failure to operate the product in accordance with the instruction manual.
- 4) Damage resulting from attempted repairs by unauthorized personnel.
- 5) Claims based on any perceived agreement not explicitly stated in this warranty such as conversations with service personnel or sales representatives.

### 4.2. Limitation of Implied Warranties

All implied warranties, including warranties of merchantability, are limited in duration to a period of one (1) year from the date of shipment from Ultra Electronics – USSI.

### 4.3. Exclusion of Certain Damages

Ultra's liability is limited to the repair or replacement, at our option, of any defective product, and shall in no event include incidental or consequential commercial damages of any kind. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the preceding limitation or exclusion may not apply to you.

For further information regarding this warranty, parts, or service, please contact Ultra Electronics – USSI through one of the methods listed at the beginning of this warranty section.



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