

### Features

- 3.76x2.95x1.1mm Bottom Port
- Single Ended Analog Output
- SNR of 64dBA
- RF Shielded
- Compatible with Standard SMD Reflow Technology
- RoHS Compliance & Halogen Free

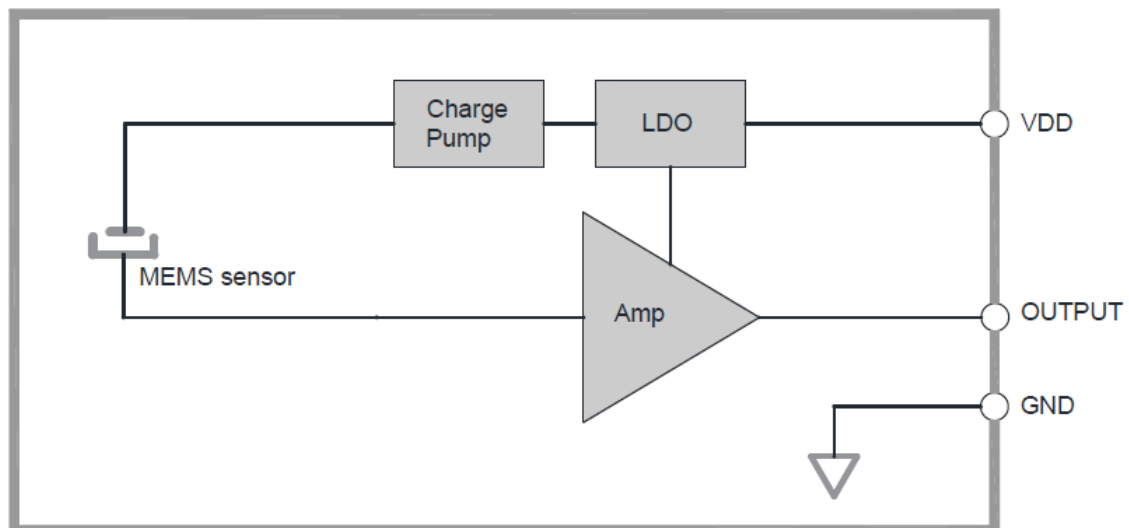
### Applications

- Smart Phones
- TWS Headsets
- Smart Speakers
- Wearable Electronics
- Portable Electronics
- Smart Home Electronics
- Laptop Computers



**Description** RMIC-94-3.6-3729-RG-NS1 is a small package, single-ended output bottom port analog MEMS microphone. The MEMS Microphones are integrated with specialized Pre-amplification ASIC to provide high sensitivity, high SNR output from a capacitive audio sensor. It's packaged for surface mounting and high temperature re-flow assembly.

### BLOCK DIAGRAM



### ABSOLUTE MAXIMUM RATINGS

Parameters	Value			Unit
	min	typ	max	
Supply Voltage			3.6	V
Operation Temperature Range	-40		+100	°C
Storage Temperature Range	-40		+125	°C

Note : Stresses at the maximum ratings shown in Table may cause permanent damage to the device. These are stress ratings only at which the device may not function when an operation at these or any other condition beyond those specified under "Electro-Acoustic Specifications".

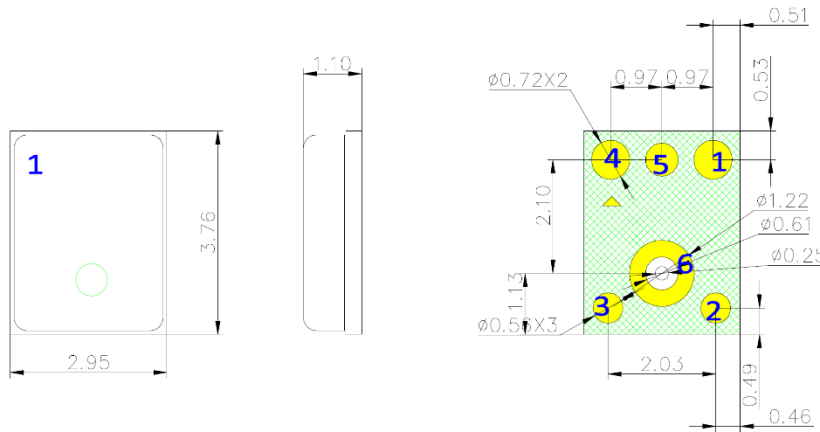
### ELECTRICAL SPECIFICATIONS

Test condition: Vdd=2.0V, no load, unless otherwise specified.

Parameters		Value			Unit
		min	typ	max	
Directivity		Omni-Directional			
Sensitivity (S)	94db SPL@ 1kHz	-39	-38	-37	dB
Current Consumption (I)	Vdd= 2.0V	100	120	150	uA
Operating Voltage	Vdd	1.6	2.0	3.6	V
Output Impedance	@1kHz		180	400	Ω
S/N Ratio (SNR)	94db SPL@ 1kHz, A-Weighted		64		dBA
Total Harmonic Distortion (THD)	@ 94dB SPL @1kHz		0.1	0.5	%
Acoustic Overload Point (AOP)	@10% THD @1kHz		128		dB SPL
Power Supply Rejection	@100mVpp Square wave, 217Hz, A-weighted		-100	-80	dB
Power Supply Rejection Ratio	@200mVpp Sinewave @1kHz		70		dB
Output Load	@ Cload			150	pF
	@ Rload	10		100	kΩ

Note: Frequency response, sensitivity, phase and current consumption are tested by 100% on product line.

## DIMENSIONS



TOP VIEW

Side VIEW

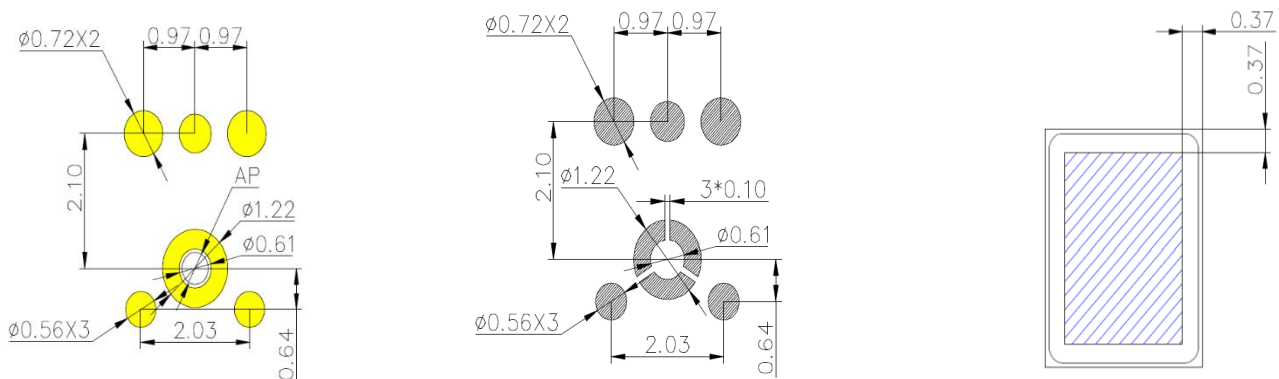
Bottom VIEW

Unit: mm Unmarked Tolerance:  $\pm 0.1$  (mm)

Item	Dimension	Tolerance(+/-)
Length(L)	3.76	0.10
Width(W)	2.95	0.10
Height(H)	1.1	0.10
Acoustic Port(AP)	$\varnothing 0.25$	0.05

Pin #	Pin Name
1	Output
2	GND
3	GND
4	V <sub>DD</sub>
5	GND
6	GND

## PICKUP TOOL PICK LOCATION & PCB SOLDER PAD



PCB Land Pattern

Solder stencil Pattern

Pick up area

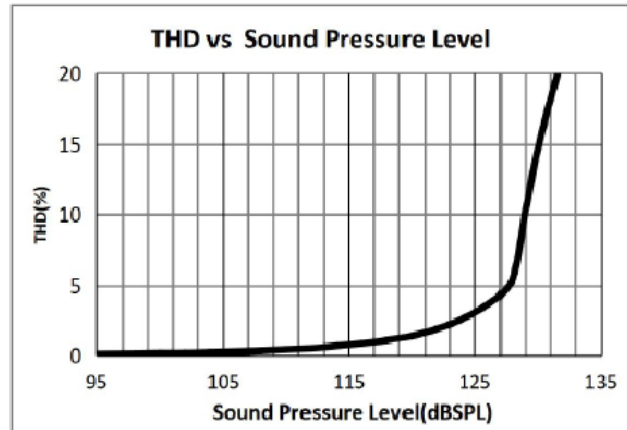
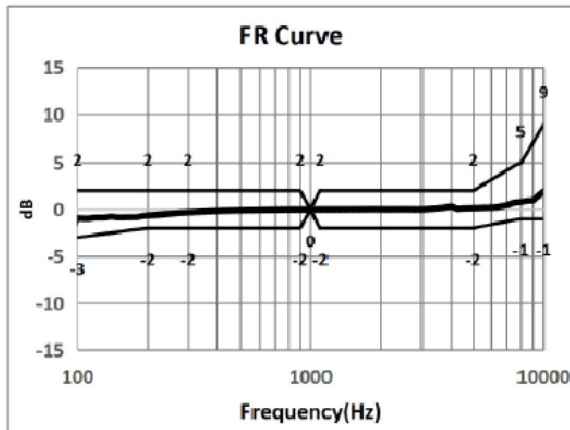
### Notes:

Dimensions are in millimeters(mm) unless otherwise specified.

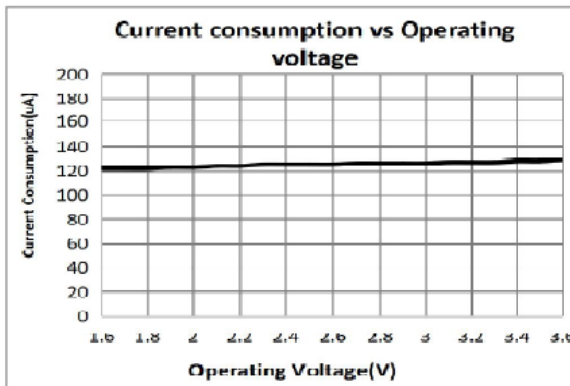
Tolerance is  $\pm 0.1$ mm unless otherwise specified.

The recommended non-plated hole("AP") diameter of PCB is 0.5-0.7mm.

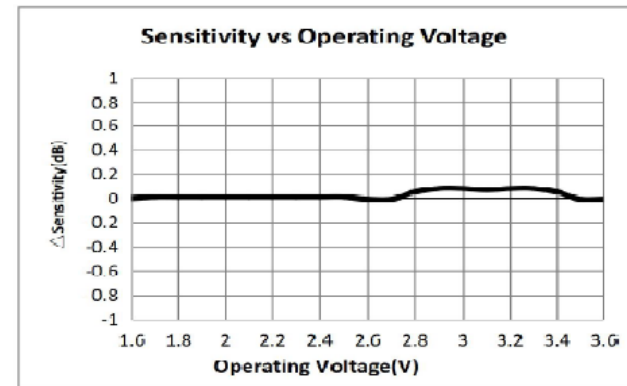
## FREQUENCY CHARACTERISTICS



Frequency response curve normalized to 1kHz

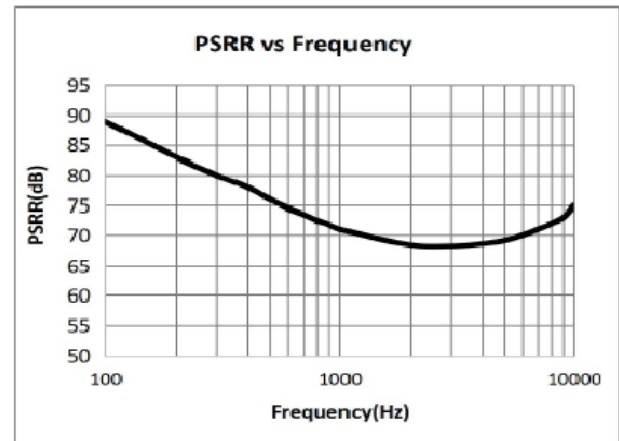
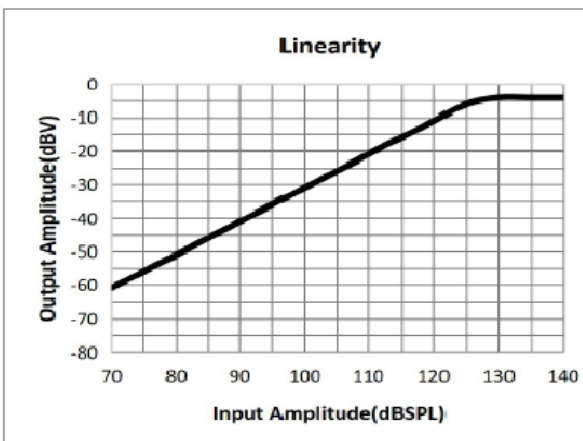


Typical THD vs Sound Pressure Level



Sensitivity vs Operating Voltage

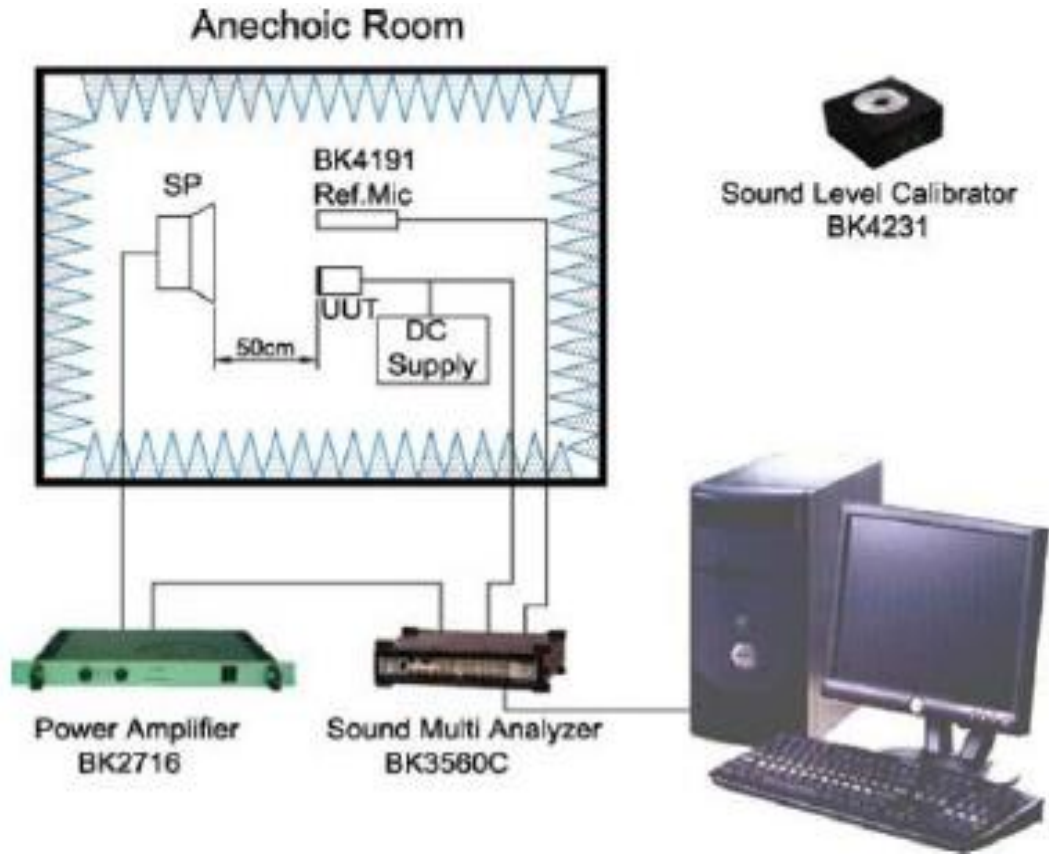
Current consumption vs Operating voltage



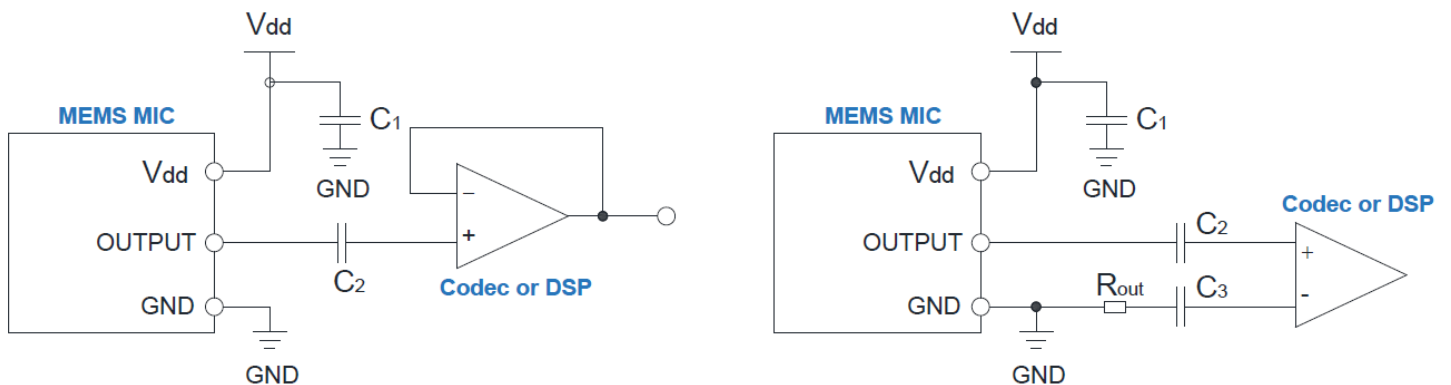
Linearity

Typical PSRR curve

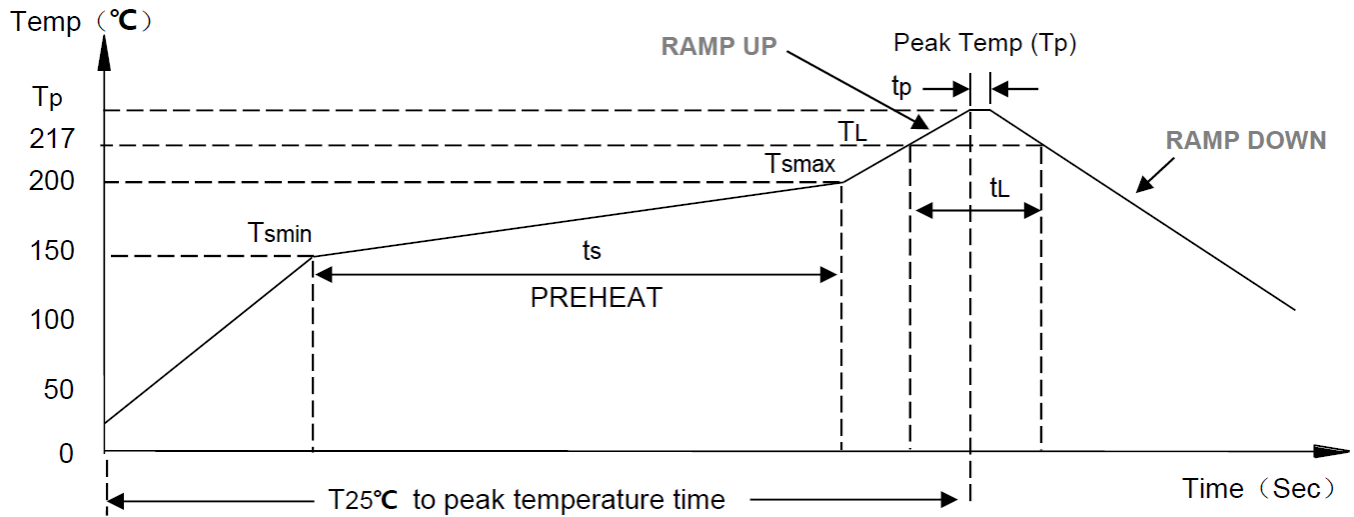
### MEASUREMENT SYSTEM SETUP



### TYPICAL APPLICATION CIRCUIT



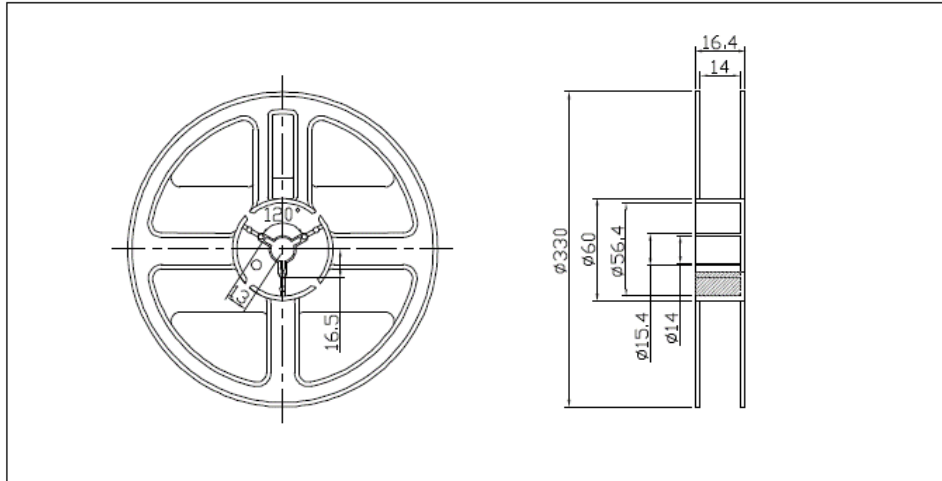
## REFLOW PROFILE



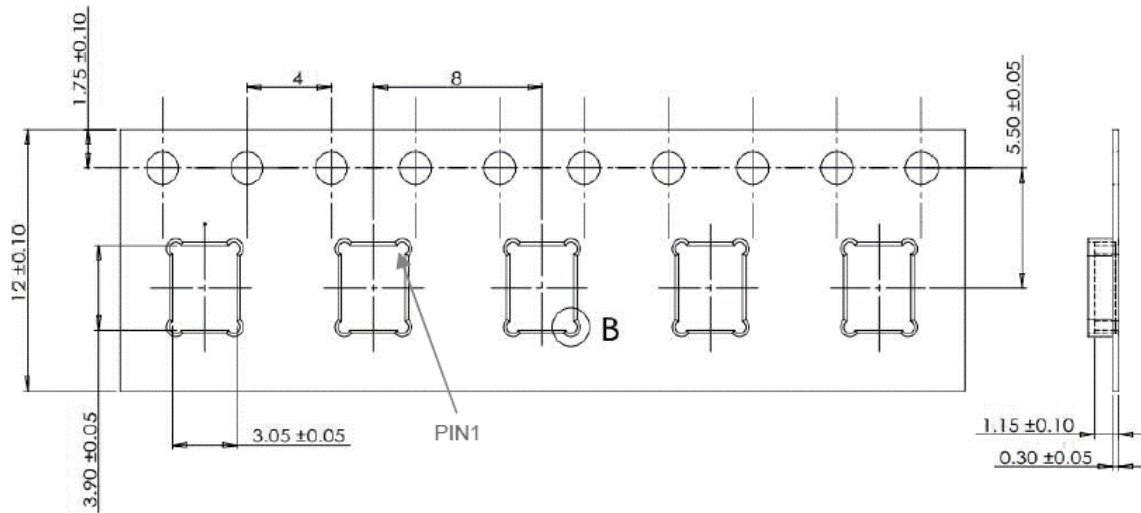
Parameter		Specification
Average temperature change rate (TSMAX to TP)		3°C /second max.
Preheat	Temperature min.(TSMIN)	150°C
	Temperature max.(TSMAX)	200°C
	Time TSMIN to TSMAX	60-180 Seconds
Time Maintained Above Liquidous		60-150 Seconds
Liquidous Temperature		217°C
Peak Temperature		260°C +0°C/-5°C
Time Within +5°C of Actual Peak Temperature		20 sec to 40 sec
Ramp-Down Rate		3°C/sec max
Time +25°C (t25°C) to Peak Temperature		8 min max

### PACKAGING

13" Reel drawing:



Tape drawing:



### APPROVAL

DRAWN BY	JS, May 28, 2024
APPROVED BY	AR, May 28, 2024
REVISION	A, Initial Release

Raltron Electronics / RAMI Technology USA, LLC, including its affiliates, employees, agents and other persons acting on its behalf (collectively Raltron/RAMI Tech), disclaim any and all liability for any errors or inaccuracies contained in this data sheet. While Raltron/RAMI Tech has made every reasonable effort ensure the accuracy of all product information, specifications and data contained herein, Raltron/RAMI Tech does not guarantee that the information is accurate, reliable or current. The product information is provided only for reference purposes only and is subject to change, correction or revision, at any time without notice. Raltron/RAMI Tech does not assume any liability arising out of an application or use of any product described herein and disclaims any warranties expressed or implied. The user of products in such applications shall assume all risks of such use and will agree to hold Raltron/RAMI Tech, harmless against all damages. Copyright © 2016, Raltron Electronics / RAMI Technology USA, LLC. All rights reserved. No part of this document may be reproduced in any form without the prior written permission of Raltron Electronics / RAMI Technology USA, LLC.