



# SON200RH Series Digital Remote Heads

SON201RH, SON202RH, SON203RH, SON204RH Digital Remote Heads

## *Installation & Operation Manual*



# DIGITAL REMOTE HEADS OVERVIEW

## SON200RH Series Digital Remote Heads

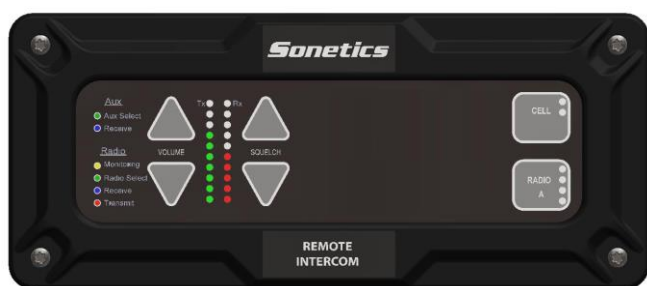
The Sonetics SON200RH Series Digital Remote Heads, when used with Sonetics noise attenuating headsets, provide protection from hearing loss that can occur from exposure to high noise levels, while also providing each user clear communication with the other crew members.

### New Features:

- Waterproof Remote Head for outdoor installations
- Squelch control
- Models available for 1, 2, 3, or 4 radios

Each crew member will hear all radio traffic and be able to communicate over the intercom. Crew members wearing Radio-Transmit headsets may transmit over the apparatus radio from any headset position in the system. "Intercom Only" headsets will not transmit over the radio.

There are 4 models of Remote Heads in the SON200RH Series as shown below.



Model SON201RH



Model SON202RH



Model SON203RH



Model SON204RH

FIGURE 1

# SYSTEM ORIENTATION

This section provides an overview of the SON200RH Series Digital Intercom System and an introduction to its individual components. Figure 2 shows a typical system. Refer to this diagram for each component.

## REMOTE HEAD

A Remote Head can be connected to the main control unit to control the intercom from a remote location. Up to 5 remote heads can be connected to the digital intercom by utilizing an RJ-12 splitter or by splicing into the 6 conductor modular cable.

## INTERCOM

The main control unit for the SON200RH Series Intercom System which contains all the controls and interface circuitry.

## WIRELESS BASE STATION

Provides wireless communications between wireless headset users and belt pack users, and intercom and radio users.

## 2-WAY RADIO

The existing 2-way radio in the apparatus.

## MOBILE RADIO INTERFACE CABLE

Provides the interface connections between the SON200RH Series Intercom Unit and the 2-way radio in the apparatus. There are many cable assemblies available; the cable needed depends on the make and model of your radio. Contact your local Sonetics Dealer for more information regarding an Interface Cable specific to your radio.

## POWER CABLE ASSEMBLY

Provides the power connections for the SON200RH Series Intercom Unit. The power connections should be made at the same place as the power connections for your radio.

## HM-10 HEADSET MODULES

The headset will be plugged into the Headset Module (HM-10) which is the standard module for headset-to-system interface.

## PP-20 PUMP PANEL MODULE

A water-resistant Headset Module used on the exterior of the apparatus (e.g. at the Pump Panel, at the tail-board, etc.).

## CA CABLES

Six-conductor flat cable which connects the SON200RH Series Intercom Unit to the Wireless Bases, HM-10, PP-20 Headset Modules, and the Remote Intercom.

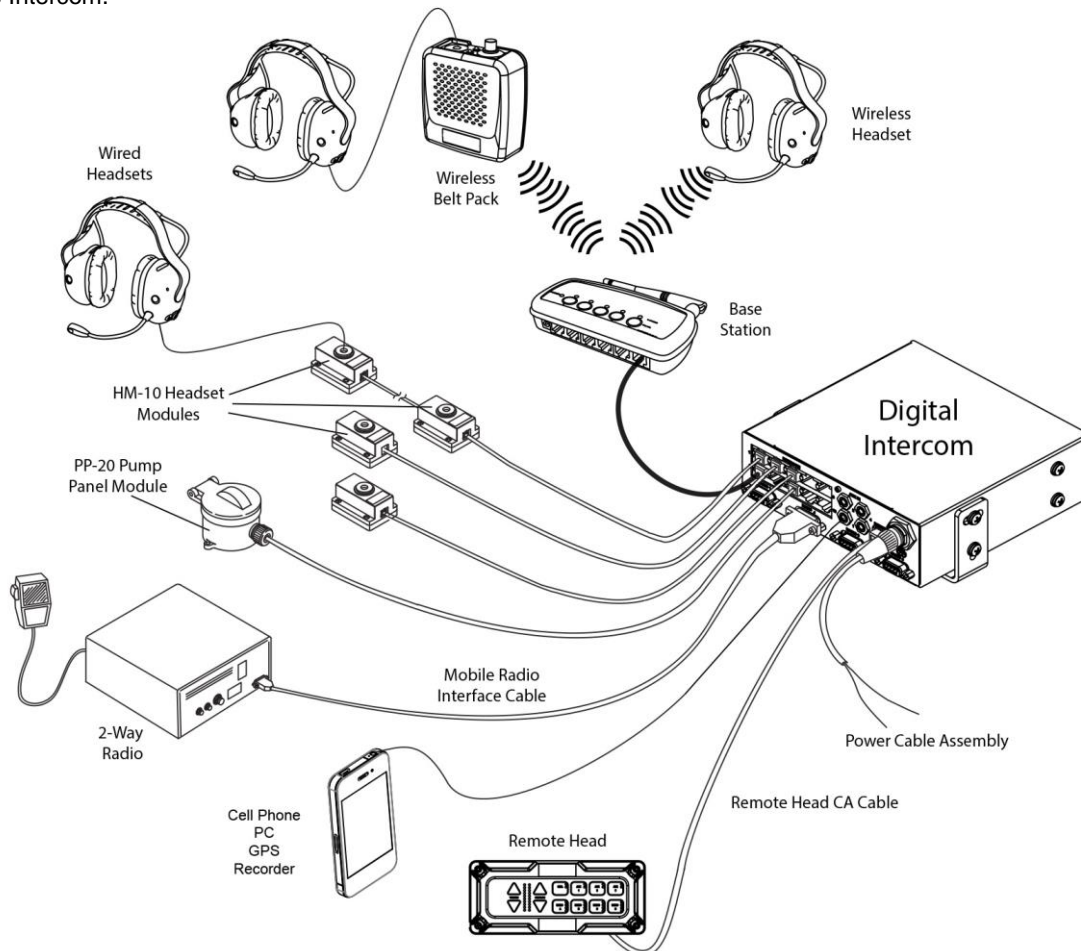


Figure 2

Figure 2

# REMOTE HEAD CONTROLS

## FRONT PANEL CONTROLS:

### VOLUME UP & VOLUME DOWN BUTTONS:

Adjust the master volume for the Intercom System.

### VOLUME INDICATOR LED'S:

10 green LED's which indicate the master volume level setting. There are 3 volume changes between lights.

### SQUELCH LEVEL INDICATOR LED'S:

10 red LED's which indicate the master volume level setting. There are 3 volume changes between lights.

### SQUELCH LEVEL UP & SQUELCH LEVEL DOWN BUTTONS:

10 red LED's which indicate the master volume level setting. There are 3 volume changes between lights.

### RADIO SELECT LED BUTTONS:

**Green LED:** The green LED indicates which radio is the transmit radio.

**Yellow LED:** All active radios are indicated with a yellow LED.

**Red LED:** The red LED provides indication that a radio transmission is occurring.

**Blue LED:** The blue LED indicates audio traffic on a radio.

### AUX & CELL BUTTONS:

**Green LED:** The green LED indicates an active Aux port.

**Blue LED:** The blue LED indicates that there is audio traffic on an Aux port.

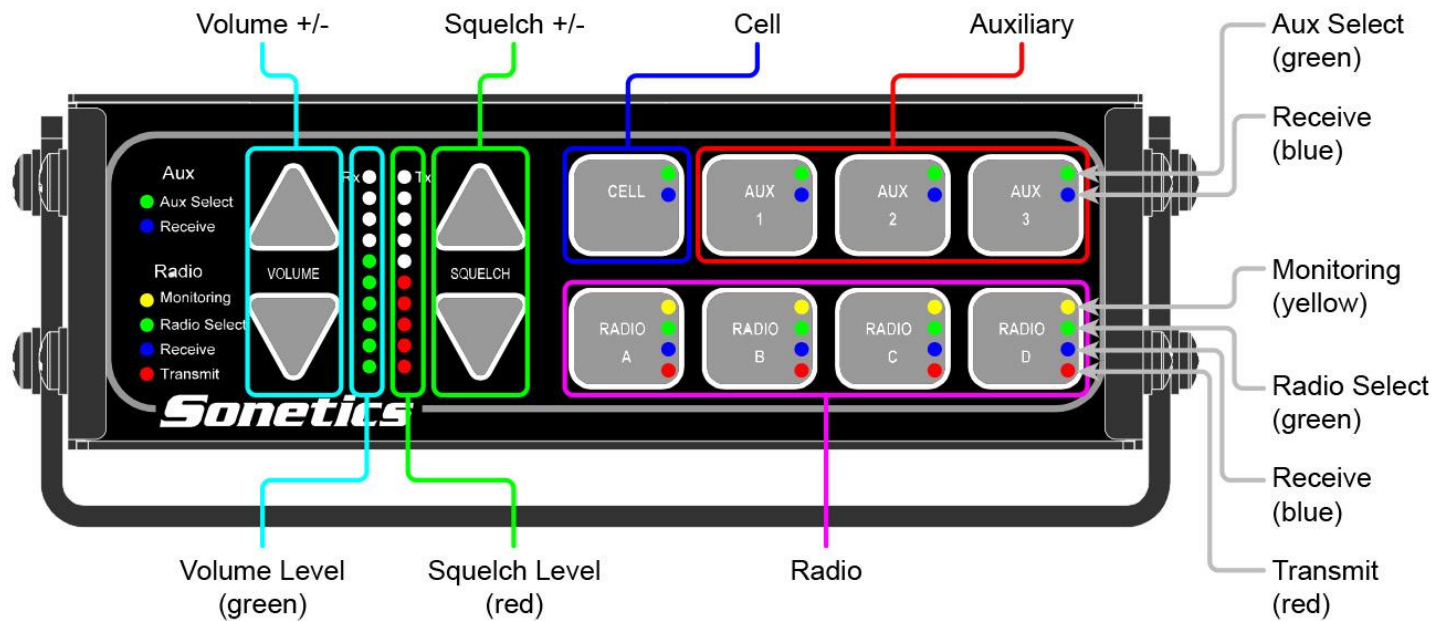


FIGURE 3

# INSTALLATION

## INSTALLING A REMOTE HEAD:

Remote Heads can be connected to the Digital Intercom unit by plugging the CA Cable plug into the Remote connector shown in Figure 4. A remote head can be installed on a mounting bracket or flush mount to any flat surface.

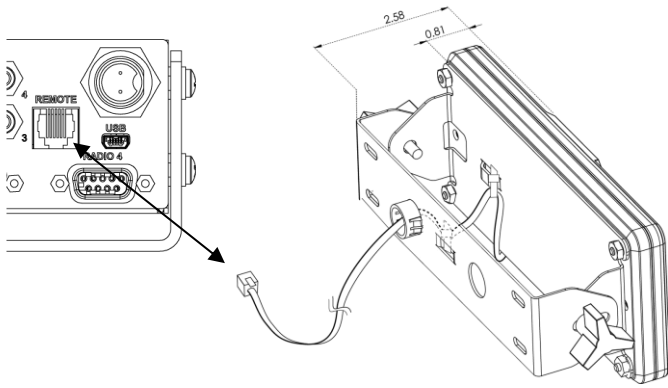


FIGURE 4

### Included Mounting Hardware (with remote head):

- (4) #6x.75in sheet metal screws
- (1) .28 ID x .56 OD x .25 in black rubber grommet

### Included Mounting Hardware (with mounting bracket):

- (4) #6 x.50in sheet metal screws
- (4) #6 x.75in Machine Screw
- (4) #6-32 Hex Nuts
- (4) #6 Split Washer
- (1) .50" ID Snap-In Grommet

## Mounting Flush to a Flat Surface

1. Remove the 4 Torx bolts (T-10) and nuts from the corners of the remote head
2. Use the bracket as a template to mark and drill (4) mounting holes: 7/64" diameter for sheet metal screws or 5/ 32" for machine screws
3. For an installation where the wire passes through the mounting surface, drill a 3/8" hole and install the supplied rubber grommet. Pass the wire through.
4. For inside installation, mount the panel using the supplied sheet metal screws (4), making sure the cable is not pinched  
Recommended torque : 10 in-lbs
5. Determine the correct length for the CA cable, and cut cable to correct length.

## Mounting with Bracket

1. Remove the 4 Torx bolts (T-10) and nuts from the corners of the remote head
2. Before mounting the bracket, drill a 3/4" hole at the desired wire pass-through location.
3. Snap the grommet into the bracket as shown in (Figure 5) and then use the bracket as a template to mark the mounting holes.
4. Drill (4) mounting holes: 7/64" for #6 sheet metal screws or 9/64" for #6 machine screws. Mount the bracket using the included hardware
5. Secure the Remote Head to the front of the bracket with the included machine screws, split washers, and nuts as shown in Figure 5. **Recommended torque : 10 in-lbs**
6. Thread the cable through the bracket **assembly as shown in (Figure 5)**.
7. **Using the supplied cable ties secure the CA Cable** to the bracket anchors as shown (Figure 5).
8. Adjust the panel to a desirable viewing angle with the two hand knobs.

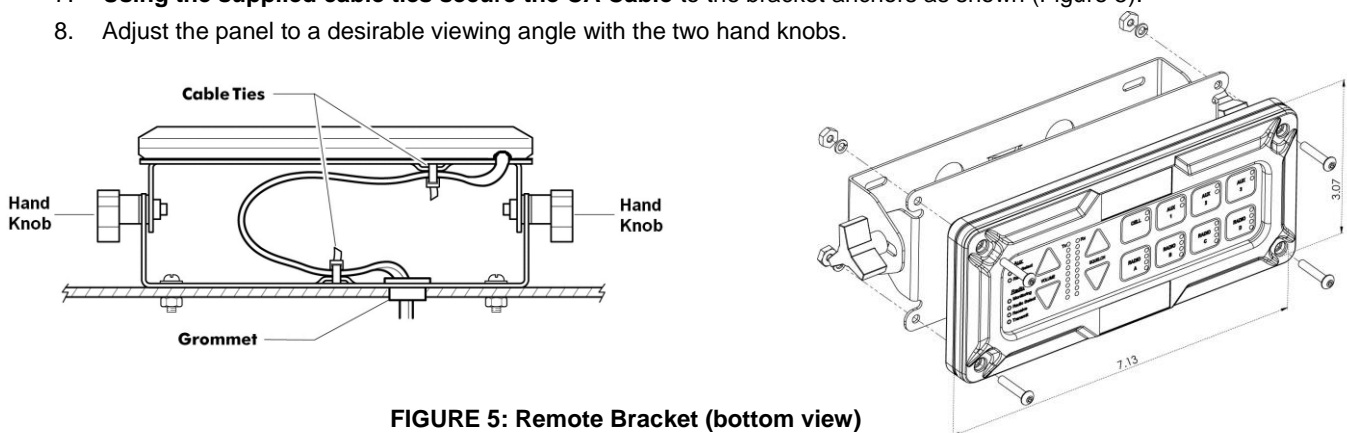


FIGURE 5: Remote Bracket (bottom view)

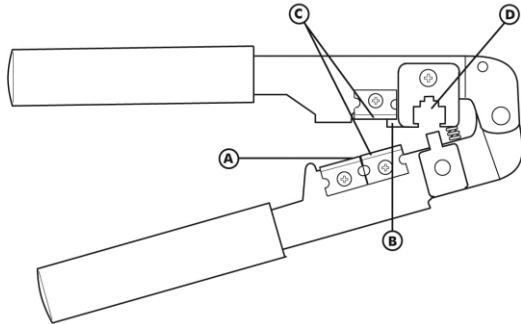
## Connecting Multiple Remote Heads

Up to five remote heads can be used to control a digital intercom. To install multiple remote heads, contact Sonetics for a 'Y' adapter (PN: 108-0066-00), or splice multiple CA Cables together. Refer to Figure 9 for wiring diagram.

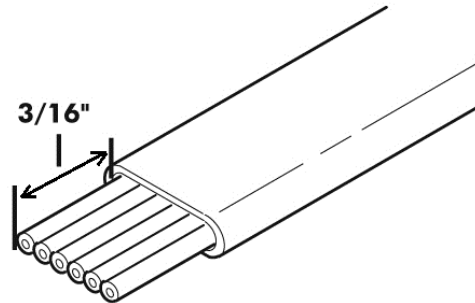
## **MODULAR PLUG INSTALLATION**

This section describes the installation of the RJ-12 Modular Plug onto the flat CA Cable.

1. Using the cutter blade on the crimping tool (labeled **A** in Figure 6), cut the flat CA Cable so the cut is clean and 90 degrees to the sides of the cable.
2. Fully insert one end of the CA Cable between the stripping blades (labeled **C** in Figure 6) until the end of the cable hits the stop (labeled **B** in Figure 6).

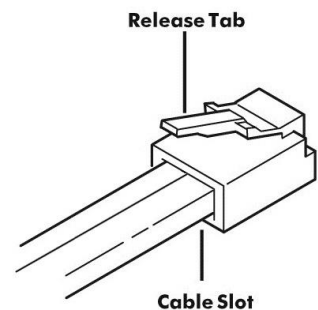


**FIGURE 6: RJ-12 Modular Plug Crimping Tool**



**FIGURE 7: Stripped CA Cable**

3. Squeeze the handles of the crimping tool together until the tool bottoms out.
4. While holding the handles together, pull the cable out of the tool.
5. The stripped insulation should expose approximately 3/16" of wire (Figure 7).
6. Push a RJ-12 Modular Plug into the plug holder on the crimping tool (labeled **D** in Figure 6) until the release tab on the plug locks into position.
7. Holding the cable so that the printed side of the cable is toward the release-tab on the plug, push the cable into the plug as far as it will go.  
**ALWAYS** make sure the printed side of the cable is facing away from the release-tab on the RJ-12 Modular Plug (Figure 8). This ensures proper orientation of the plug on each end of the cable.
8. Squeeze the tool handles **COMPLETELY** together. You may feel the crimper punching the contacts through the insulation on the wires.
9. Let the handles spring open.
10. Push down on the release-tab on the RJ-12 Modular Plug (Figure 8) and remove the RJ-12 Modular Plug from the crimping tool.
11. Inspect the plug to ensure that the cable is held securely in place.



**FIGURE 8: RJ-12 Modular Plug**

## **SYSTEM TEST**

### **REMOTE HEAD TEST**

1. Press the VOLUME up and down buttons on the Remote Head front panel. The Main Intercom LED's should show the volume level changes.
2. Press the SQUELCH up and down buttons on the Remote Head front panel. The Main Intercom LED's should show the squelch level changes.
3. Press the AUX 1 button on the Remote Head front panel to light the green and blue LED's. The Main Intercom LED's should show the same LED changes for AUX 1. Repeat the operations test for AUX 2, 3, and CELL buttons.
4. Press the RADIO A button on the Remote Head front panel to light the yellow, green, blue, and red LED's. The Main Intercom LED's should show the same LED changes for RADIO A. Repeat the operations test for RADIO B, C, and D.

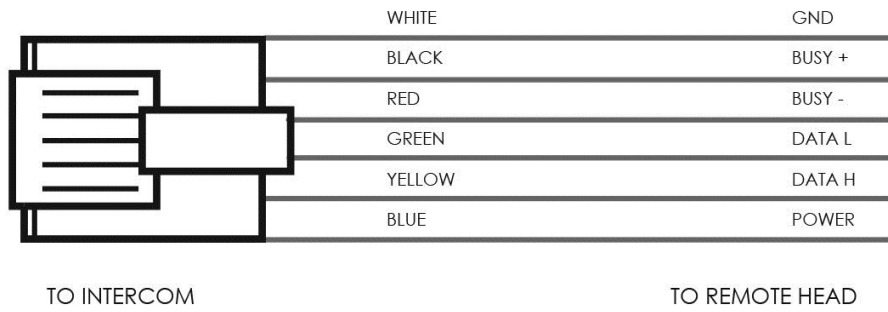
## **ADVANCED TROUBLESHOOTING**

### **REMOTE HEAD DOES NOT WORK**

1. Make sure the CA cable plug is inserted completely into the Remote port of the Main Intercom.
2. Inspect the CA cable plug end to insure the plug is wired correctly (Figure 9)
3. Contact Sonetics for a Return Materials Authorization (RMA) number to return the Remote Head for repair.

# WIRING DIAGRAM & SCHEMATICS

## Remote Head Wiring



**FIGURE 9: Modular Plug Wiring (tab down orientation)**

## Specifications

Size: ..... 7.125" L x 3" W x .875 D  
Weight: ..... 15 oz.  
Power Requirements: ..... Supplied by Intercom  
IP Classification. .... IP67  
Operating Temperature ..... -40°F (-40°C) to +158°F (+70°C)  
Storage Temperature ..... -40°F (-40°C) to +185°F (+85°C)

\*Specifications subject to change without notice

Sonetics Corporation (“Sonetics”) warrants to the original purchaser of its products that products will be free from defects in materials and workmanship under normal and proper use for the period of **one (1) year** from date of purchase.

Sonetics Corporation will repair or replace, at its option, any products showing factory defects during this warranty period, subject to the following provisions and obligations:

1. This warranty applies only to a new product sold through authorized channels of distribution.
2. All work under warranty must be performed by Sonetics Corporation or Sonetics Authorized Service Center.
3. All returned products must be shipped to our address, freight prepaid and Sonetics will return products to customer via ground freight. Any expedite fees or additional freight charges will be charged to customer.
4. Any attempt to repair, service, or alter the product in any way voids this warranty.
5. This warranty does not apply in the event of accident, abuse, misuse, liquid contact, improper installation, unauthorized repair, tampering, modification, fire, earthquake, or damage from other external sources – including damage caused by user-replaceable parts.
6. This warranty does not apply: (a) to consumable parts such as batteries, ear seals, intercom bags, cables, external power supplies, parts listed as accessories to a system, or other parts designed to diminish in function over time unless a failure is due to a defect in materials or workmanship; (b) to cosmetic damage or to defects caused by normal wear and tear or aging of the product; (c) to damage caused by use with non-Sonetics products; (d) to damage caused by operating the product outside the permitted or intended uses or environments described by Sonetics; (e) to damage caused by service performed by anyone who is not a representative of Sonetics or an Sonetics Authorized Service Provider; (f) to a product or part that has been modified without the written permission of Sonetics; (g) if any Sonetics serial number has been removed or defaced.
7. This warranty does not extend to any other equipment, apparatus, vehicle, aircraft, or watercraft to which this product may be attached or connected.

THE FOREGOING IS YOUR SOLE REMEDY FOR FAILURE IN SERVICE OR DEFECTS. SONETICS CORPORATION SHALL NOT BE LIABLE UNDER THIS OR ANY IMPLIED WARRANTY FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES, NOR FOR ANY INSTALLATION OR REMOVAL COSTS OR OTHER SERVICE FEES. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING THE WARRANTY OF MERCHANTABILITY OR FITNESS OF USE, WHICH ARE HEREBY EXCLUDED. TO THE EXTENT THAT THIS EXCLUSION IS NOT LEGALLY ENFORCEABLE, THE DURATION OF SUCH IMPLIED WARRANTIES SHALL BE LIMITED TO ONE (1) YEAR FROM DATE OF PURCHASE. NO SUIT FOR BREACH OF EXPRESS OR IMPLIED WARRANTY MAY BE BROUGHT AFTER **ONE (1) YEAR** FROM DATE OF PURCHASE.

Subject to the terms and limitations of this Sonetics Standard Limited Warranty, this warranty covers any new covered product found to be defective within the applicable warranty period. Sonetics reserves the right to examine the alleged defective covered product to determine whether this Sonetics Standard Limited Warranty is applicable, and final determination of warranty coverage lies solely with Sonetics. If Sonetics determines that warranty coverage applies, Sonetics reserves the right to either repair or replace a covered product or any part thereof, as determined by Sonetics in its sole discretion. If the product has been subjected to conditions which exclude coverage under the warranty, customer will be so advised. Customer may then authorize paid repair service or other disposition of the product. Notwithstanding any other provision of this warranty, if you sell or otherwise transfer ownership of your covered product, this Sonetics Standard Limited Warranty shall automatically terminate.





7340 SW Durham Road

Portland, Oregon 97224 U.S.A.

Phone: 800-833-4558, 503-684-7080, Fax: 503-620-2943

[www.soneticcorp.com.com](http://www.soneticcorp.com.com) \* [service@soneticcorp.com](mailto:service@soneticcorp.com)

© 2012. Sonetics Corporation. All rights reserved. The information in this document is subject to change without notice.  
No part of this document may be copied or reproduced in any form without the prior written consent of Sonetics Corporation.

600-3050-00 Rev E