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AND9740/D

Ezairo® Preconfigured Suite Automatic Receiver Detection

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APPLICATION NOTE

Introduction

This application note describes the new Automatic Receiver Detection (ARD) feature included in the Ezairo Preconfigured Suite (Pre Suite) firmware bundles.

Algorithm Overview

The ARD feature in the Ezairo Pre Suite firmware bundles provides a means of automatically detecting the ID of a connected receiver link, provided the receiver links are constructed in the appropriate manner. The approach taken provides realtime detection of the connected receiver link with no audible artifacts. The feature is entirely optional and can be disabled via a parameter.

The ARD feature works by polling a pair of digital input pins (ARD0 and ARD1) at regular intervals (approximately every two seconds). These pins can be connected internally in the receiver link to either of the receiver output signals (RCVR+ or RCVR−), or left unconnected.

The construction of the receiver link is shown in Figure 1 below:

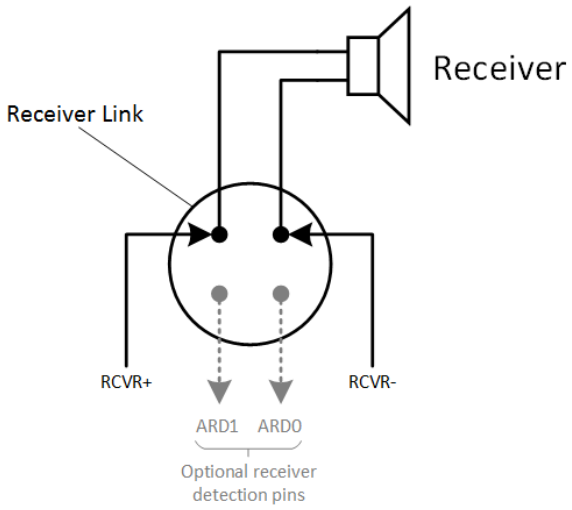

Figure 1. Receiver Link Construction Supporting Automatic Receiver Detection

When ARD is enabled in the firmware, up to nine unique IDs can be encoded. What these IDs correspond to is entirely up to the hearing aid manufacturer (e.g. assigning to left or right receivers, different power levels, etc.). The wiring diagrams corresponding to these nine unique IDs are shown in Figure 2.

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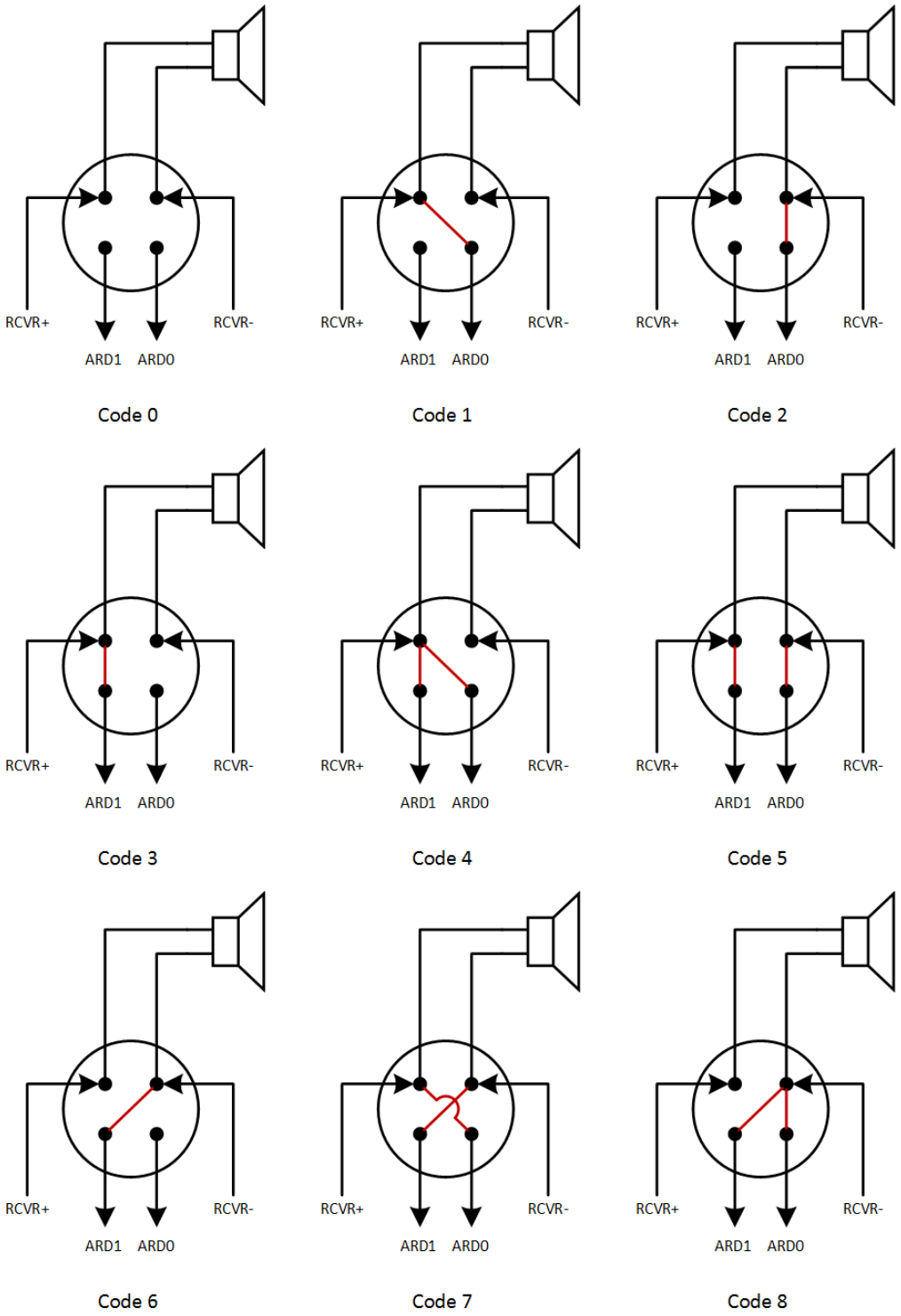

Figure 2. ARD Wiring Diagrams

User Controls

The user−configurable parameters for the ARD feature are available in the Application tab of the Control Panel within the Ezairo Sound Designer software application.

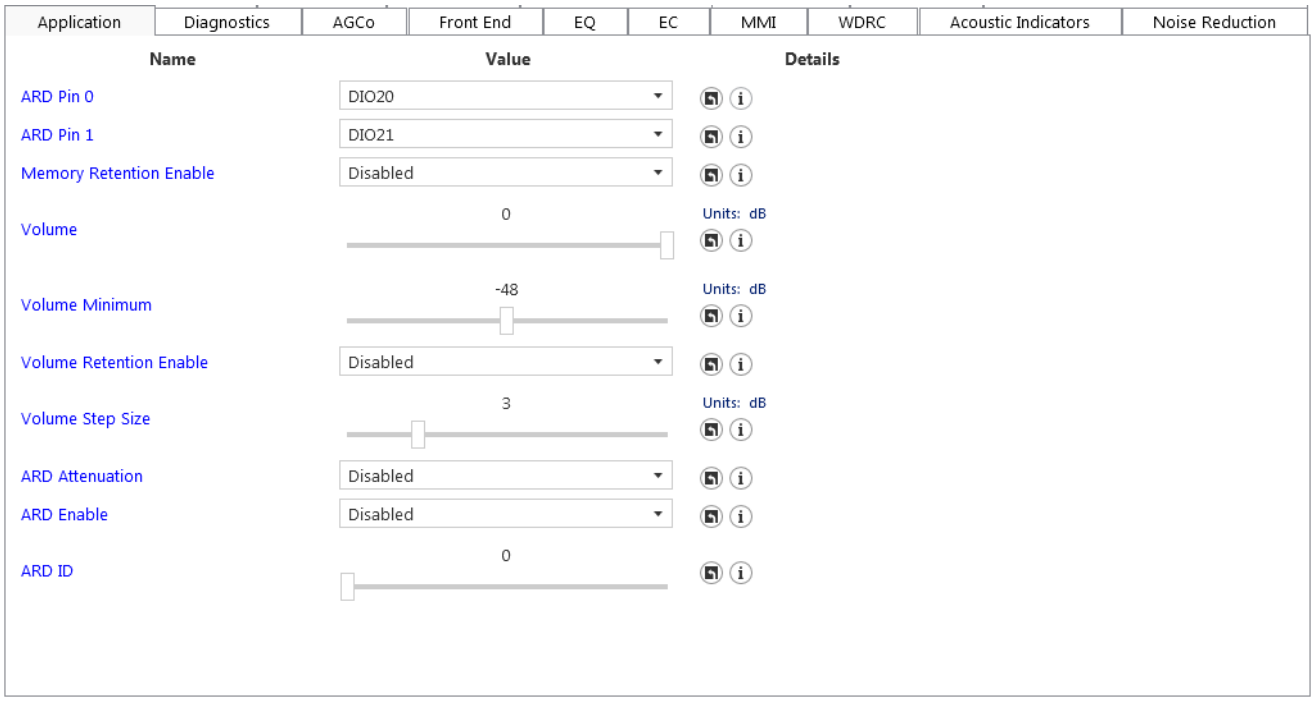

Figure 3. Ezairo Sound Designer Control Panel Application Tab

The relevant parameters for the ARD feature are as follows:

ARD Pin 0 / ARD Pin 1

Selects which DIOs to use for the ARD0 and ARD1 signals

ARD Enable

Enables or disables the ARD feature. When enabled, the receiver detection happens at regular intervals (every 2 seconds) and compares the detected receiver ID to the ID configured in the **ARD ID** parameter. If they do not match, the Error indicator will be triggered (if configured in the Acoustic Indicators module) and an optional attenuation is applied to the hearing aid output signal.

ARD ID

The ID of the expected receiver connected to this hearing aid (a value from 0 to 8)

ARD Attenuation

An optional attenuation to be applied to the hearing aid output if the detected receiver ID does not match the value programmed into the **ARD ID** parameter (up to 48 dB, in 6 dB steps)

Ezairo Sound Designer SDK Support

Support for ARD is provided in the Ezairo Sound Designer SDK via the standard parameter read/write mechanism. To get the currently detected receiver ID, use the Product.ReadArdId() method. This method will temporarily enable the ARD algorithm if required to detect the currently attached receiver.

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