

# MicrolAS – Micro Infineon Alarm System

## Quick Start Guide

### About this document

#### Scope and purpose

The document is the Quick Start Guide for Infineon's Micro IAS. It contains information pertaining to the setup and usage of the MicrolAS.

#### Intended audience

Customers interested in evaluating the MicrolAS.

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# 1 MicroIAS

Infineon’s MicroIAS is a small form-factor board (Figure 1) designed for the use as sensor fusion based alarm system. It employs a high accuracy pressure sensor (PS), a microphone (MIC) with high SNR and a powerful small form-factor ARM M4F core microcontroller from Quicklogic that processes sensor data from the microphone (listens to glass break) and the pressure sensor (picks up changes in barometric pressure after a glass break happens) and runs sensor fusion algorithms to trigger an alarm.

The MicroIAS board allows a software developer access to all essential interfaces such as UART, SWD (CON1 connector for development and debug), power supply, a manual reset (SW1) and it provides visual aids (LED1 and LED2) for the user to identify power applied (LED1 = green) and alarm triggered (LED2 = red; blinks once for intruder an twice for glass break).

An external power supply with a 3.6V to 6V range must be applied between GND and VCC on CON2 via a small 2-pin micro-cable (included) to produce the board’s needed power supply (Figure 2). LED1 (green), will be lit when the board has received the needed supply. The voltage is routed through a small LDO to generate the 1.8V needed to power sensors (MIC and PS) as well as SPI Flash and MCU.

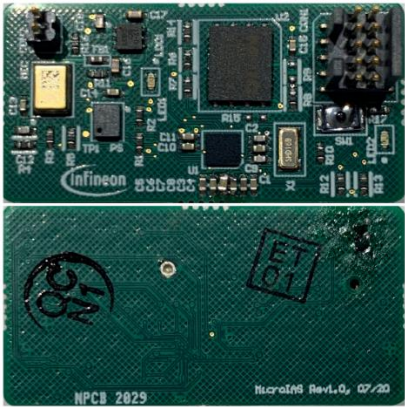


Figure 1 MicroIAS form-factor board – top/bottom view

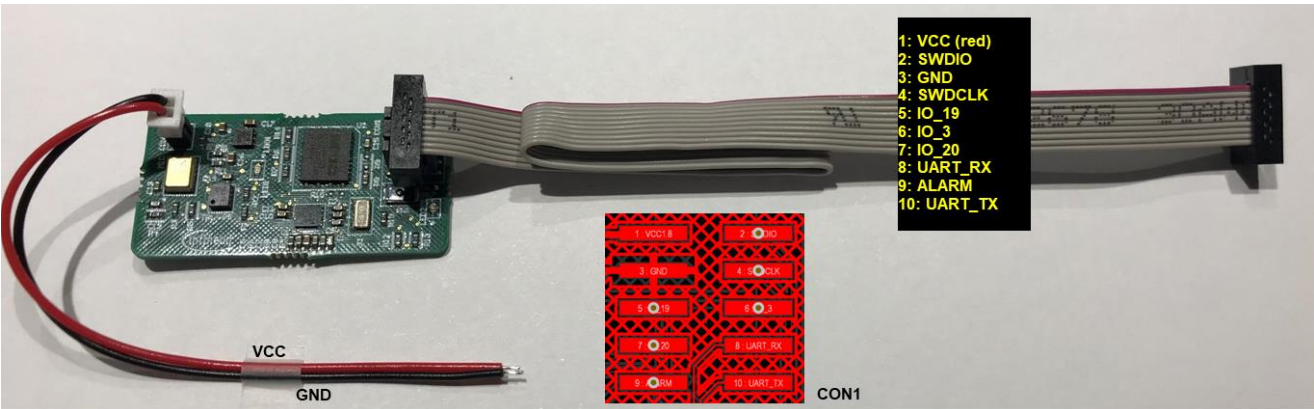


Figure 2 MicroIAS form-factor board connections

## 2 Start up procedure

### 2.1 Connecting the MicroIAS

The purpose of the MicroIAS is that of a reference design that can be quickly built into an end application for initial evaluation purposes. This board has a minimal number of test points and connections allowing the user to wire this board directly into the end application for test purposes.

The board comes pre-loaded with a bootloader tailored to using the board for glass-break and intruder functionality.

The board also has been outfitted with all the needed connections (Figure 2) to power and re-program/debug the board as well as adjust sensitivity settings, if so desired. Refer to the more comprehensive *MicroIAS User Guide* for more details on how to re-program, debug and adjust sensitivity settings.

To evaluate the board as is, no connections to CON1 need to be made (the included 10-pin ribbon cable is meant for re-programming and/or debugging with a J-LINK debugger or similar MCU programming tool), follow these few simple steps to setup your form-factor MicroIAS board:

- Connect an external 5V power supply to CON2 via the matching black/red wire pair with receptacle (included in the MicroIAS evaluation kit package). A battery pack, lab power supply or power bank producing a clean 5V output voltage will suffice. Connect the red wire to 5V (do not exceed 6V, as >6V power supplies may damage the on-board LDO used to generate the 1.8V for the sensors and the MCU) and the black wire to the ground of your power source.
- Once powered up, LED1 (green), located between the pressure sensor and the LDO should be lit, and indicating that power to the system has been applied. The on-board LDO converts 5V to the required 1.8V for sensors, MCU and flash memory.
- After powering up the MicroIAS, a board reset must be issued. To accomplish that, press SW1 (located below the 2x5 Hirose connector CON1) once. It is recommended to use a pointed object for pressing the small form-factor toggle switch. The red LED to the right of SW1 will light up once within 5s to 6s of releasing the toggle switch SW1.
- By default, the MicroIAS code is set to recognize both glass break (simulated sound via e.g. Vitron and real) and intruder events.
  - Intruder – Pressure change in the room will produce **one slow blink** of the red LED (LED2) located right below the 2x5 header (CON1).
  - Glassbreak – Glass break sound + instantaneous pressure change in the room will produce **2 rapid blinks** of LED2

## Revision history

Document version	Date of release	Description of changes
0.1	08/14/2019	Initial Release
1.0	08/21/2019	Updated figures to reflect proper wire connections on the MicrolAS board
1.1	10/03/2019	Updated connectivity text section to ensure IO19 and IO20 are shunted correctly for proper functionality
1.2	2/27/2020	Updated pin labeling in Figure 2
1.3	3/2/2020	Added reset procedure after power-up in Section 2
1.4	9/15/2020	Restructuring of figures to reflect latest updates of layout and connectivity; updates to start-up procedure section in this document
1.5	11/28/2020	Updated connectivity pictures and power connection description in Section 2.1

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**Document reference**

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