

ATM34/e Series EVK

Power Consumption Evaluation

User Guide

SUMMARY: This document provides instructions for ATM34/e Evaluation Kit (EVK) users to perform a power consumption evaluation of the ATM34/e Wireless SoC Series. Test setup and power consumption profiles are included in this document.



Atmosic™

ATM34 EVK Power Consumption Evaluation User Guide
October 20, 2025
7605-0024-0052

Table of Contents

Table of Contents	2
List of Figures	3
List of Tables	3
Acronyms and Abbreviations	4
1. Overview	5
2. Hardware and Software Requirements	5
2.1 Supported EVKs	5
2.2 Supported Software	5
3. Evaluation Board Setup	5
4. Power Measurement Procedures	8
4.1 Average Power Measurement with Multimeter	8
4.2 Power Profile Measurement	8
Reference Documents	12
Revision History	13

List of Figures

Figure 1 - ATM3430e Evaluation Board Power Consumption Setup

Figure 2 - OpenAir Beacon Power Profile

Figure 3 - Average Advertising Current

Figure 4 - Transmit Current Profile

Figure 5 - Receive Current Profile

Figure 6 - Current Profile Over 1s Interval During Advertising Phase

Figure 7 - Retention Current Profile

Figure 8 - Hibernation Current Profile

List of Tables

Table 1 - ATM34/e Series EVKs

Acronyms and Abbreviations

Acronyms	Definition
ATM34	ATM3430 ATM3405
ATM34e	ATM3430e
ATM34/e	ATM34/ATM34e
EVB	Evaluation Board
EVK	Evaluation Kit
SoC	System-on-Chip

1. Overview

This guide provides instructions for EVK users to perform a power consumption evaluation of the ATM34/e Wireless SoC Series.

2. Hardware and Software Requirements

Refer to the [Reference Documents](#) section for related documents.

2.1 Supported EVKs

EVK	SoC	SoC Part Number	Kit Part Number
Evaluation Kit for ATM3405 5x5 QFN	40-pin 5x5 mm QFN	ATM3405-5WCQK ATM3405-5PCAQK	ATMEVK-3405-WQK-5
Evaluation Kit for ATM3405 4x4 BGA	93 pin 4x4 BGA	ATM3405-5YCABV	ATMEVK-3405-YBV-5
Evaluation Kit for ATM3430e	56-pin 7x7 mm QFN	ATM3430E-5WCAQN	ATMEVK-3430e-WQN-5

Table 1 - ATM34/e Series EVKs

2.2 Supported Software

Please use the latest Atmosic OpenAir release at <https://github.com/Atmosic/openair>.

3. Evaluation Board Setup

[Figure 1](#) shows the power consumption setup for the ATM3430e EVB.

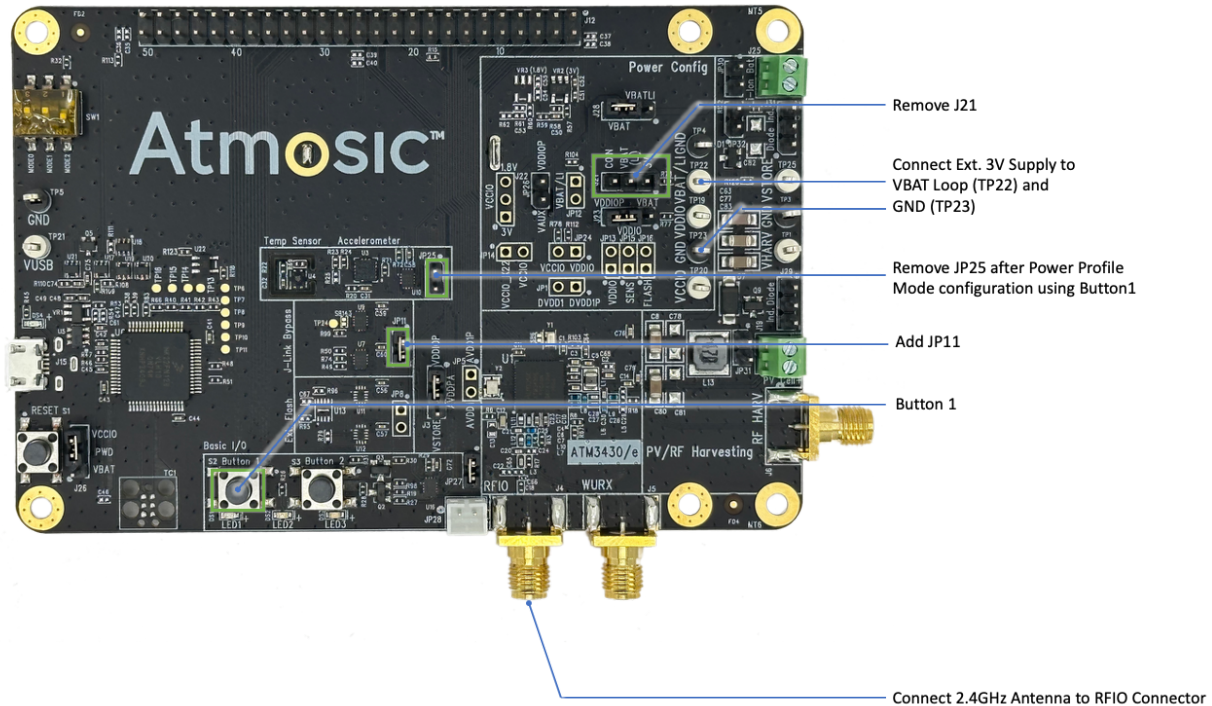


Figure 1 - ATM3430e Evaluation Board Power Consumption Setup

All ATM34/e EVBs can use the same instructions listed below:

- 1) Attach the 2.4 GHz antenna to the RFIO connector of the EVB.
- 2) Remove the jumper on J21 and connect an external 3 V power supply to TP22 (3 V) and TP23 (GND) on the right side of the board (see [Figure 1](#))
- 3) Connect a DC power analyzer (e.g., Keysight N6705C or Joulescope JS220) or 6-1/2 digit multimeter (e.g., Keysight 34465A) for power measurements.
- 4) Please make sure that the USB port remains connected so that it can power the EVB support circuitry. Otherwise, the ATM34/e power measurement will incorrectly include the power consumption of the supply circuitry.
- 5) Add a jumper on JP11 to disconnect the MK22 and prevent it from drawing power from the ATM34/e (see [Figure 1](#)). Remove this jumper once the power measurement is complete if the EVB needs to be reprogrammed.
- 6) Enable the external 3 V power supply for the EVB while pressing Button 1. The EVB is pre-programmed with the [OpenAir beacon application](#), which runs in Power Profile Mode when Button 1 is pressed at boot time.

- 7) Remove the jumper on JP25 to power down the onboard sensors (see [Figure 1](#)). Add this jumper once the power measurement is complete if Button 1 needs to be pressed again.
- 8) In the Power Profile Mode, the EVB will have the power profile shown in [Figure 2](#).

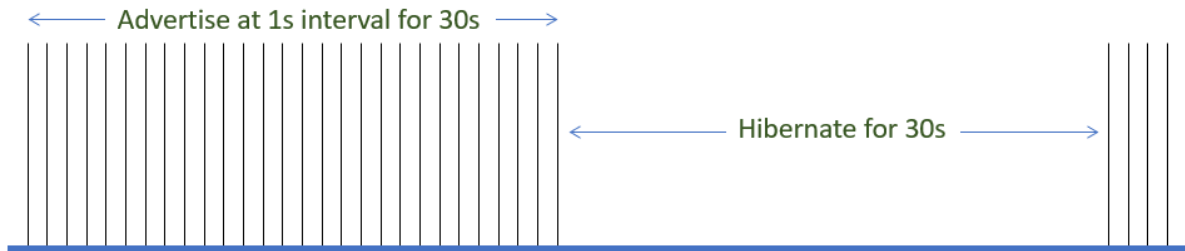


Figure 2 - OpenAir Beacon Power Profile

4. Power Measurement Procedures

4.1 Average Power Measurement with Multimeter

To make an average power measurement with a 6½ digit multimeter, please follow these instructions:

- 1) Connect the multimeter in series with the external 3 V supply.
- 2) Set the multimeter for DC Current, configure the range for 10mA, and increase the aperture to 1s. [Figure 3](#) shows an average current consumption measurement during advertising.

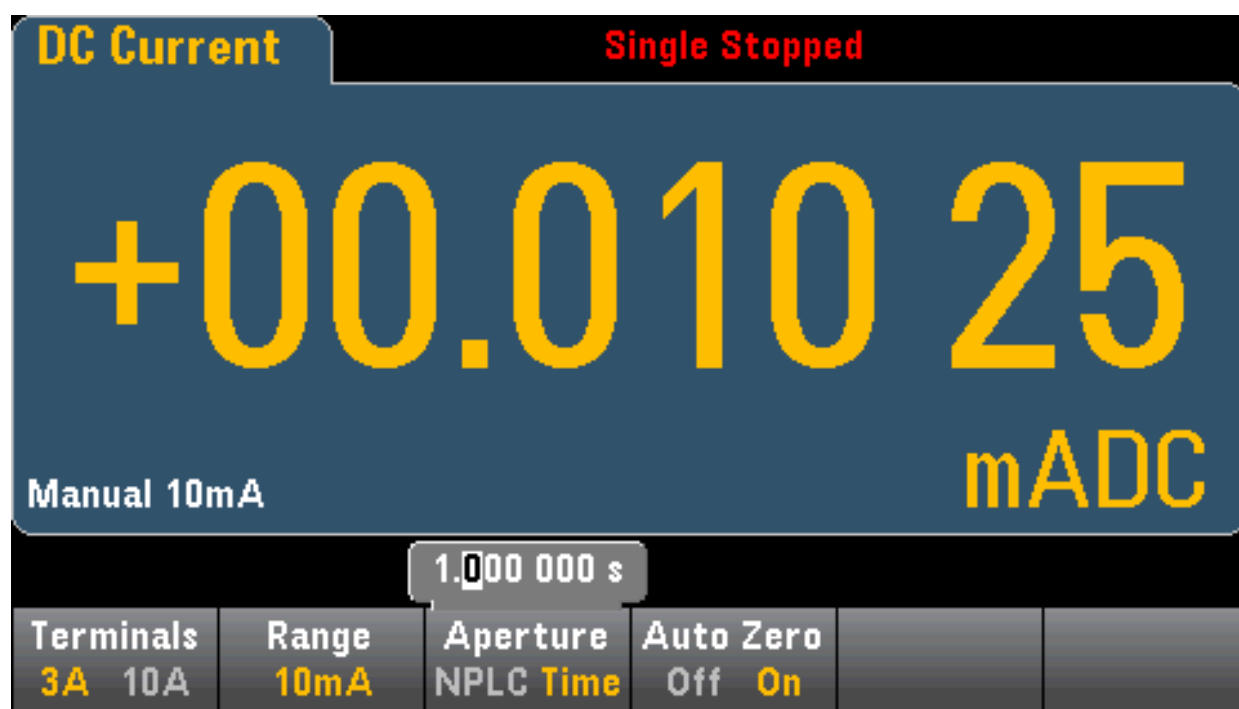


Figure 3 - Average Advertising Current

4.2 Power Profile Measurement

Measuring the dynamic current more accurately requires a DC power analyzer such as the Keysight N6705C or Joulescope JS220. For the Keysight N6705C, it is important to use auto-ranging and the maximum number of horizontal data points to observe the most accurate power profile. [Figure 4](#), [Figure 5](#), [Figure 6](#), [Figure 7](#), and [Figure 8](#) show current consumption measurements of various states using Joulescope.

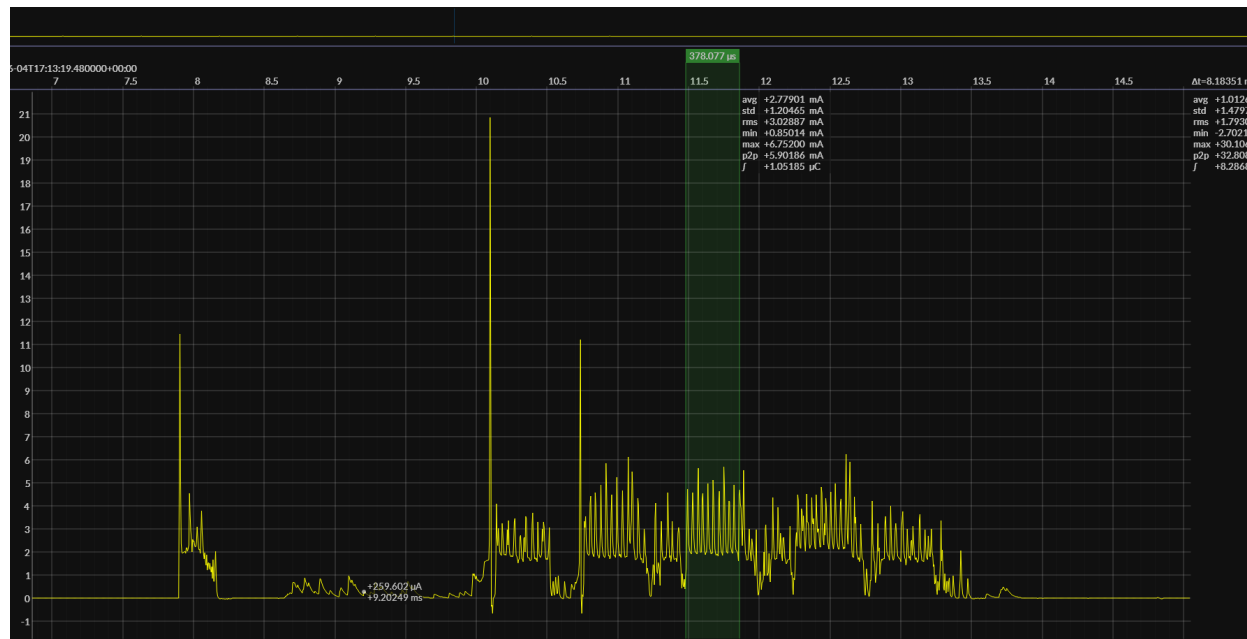


Figure 4 - Transmit Current Profile

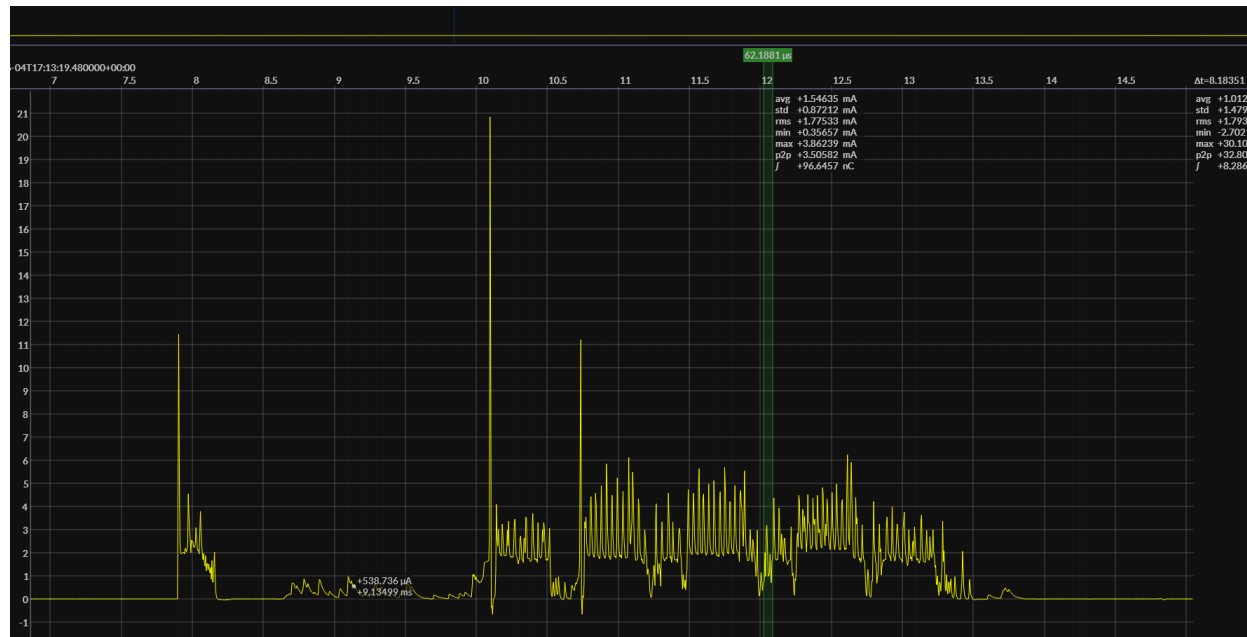


Figure 5 - Receive Current Profile

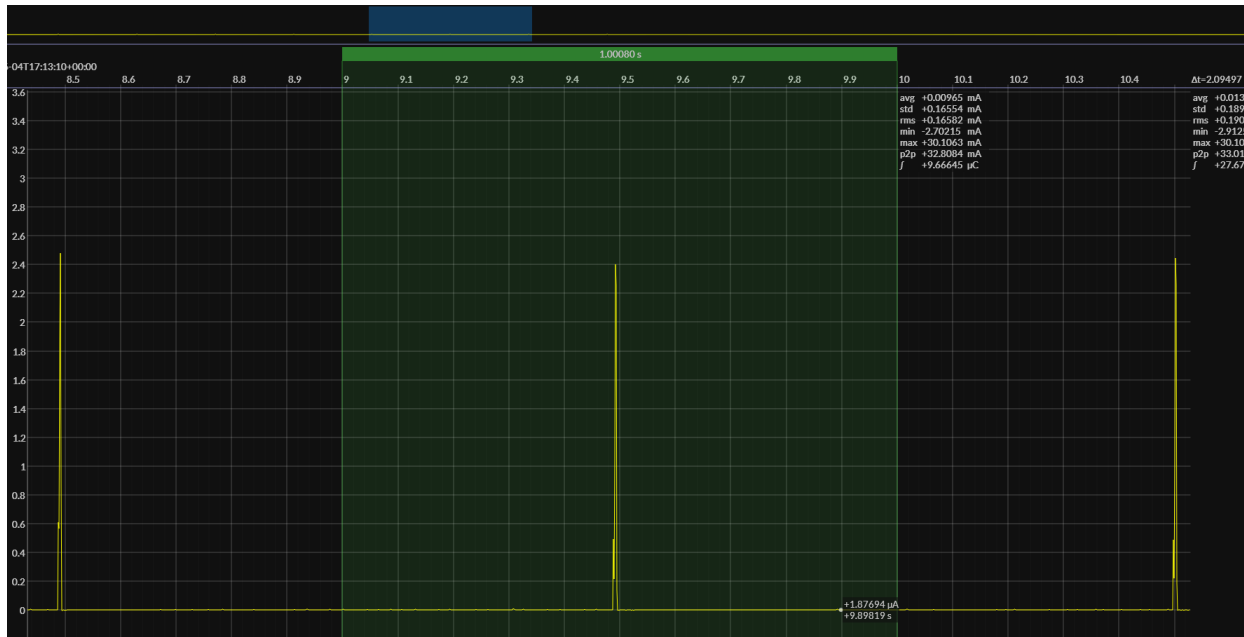


Figure 6 - Current Profile Over 1s Interval During Advertising Phase

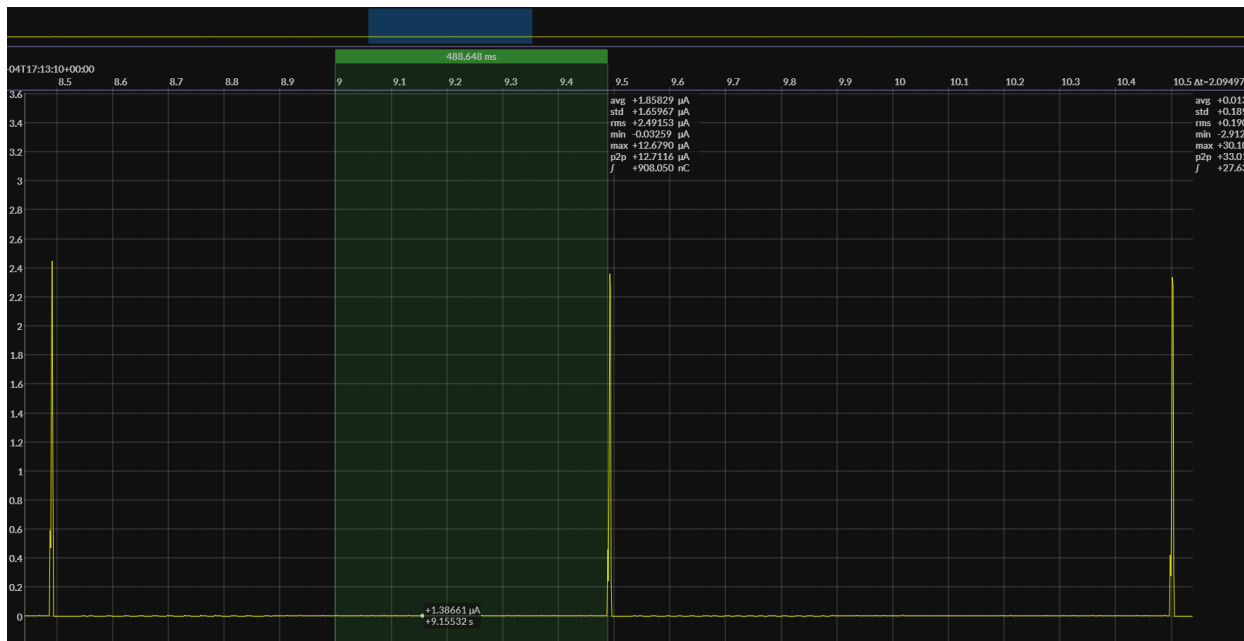


Figure 7 - Retention Current Profile

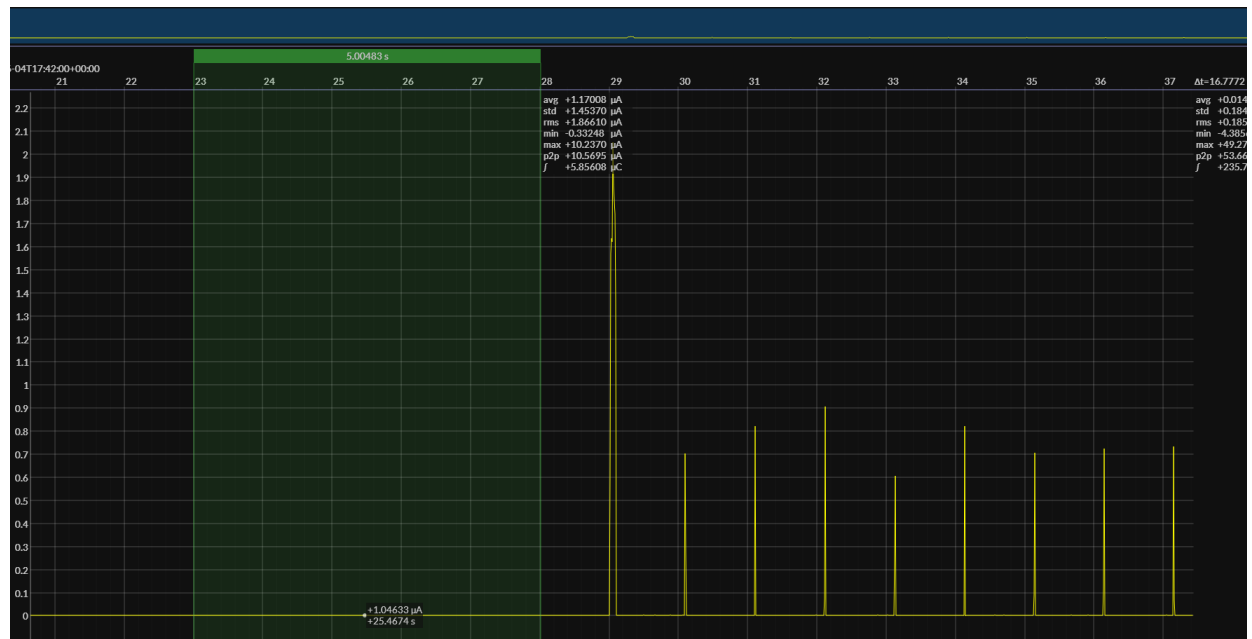


Figure 8 - Hibernation Current Profile

It is normal to observe periodic current peaks during all ATM34e operating modes. These peaks result from the typical operation of the DC/DC switching regulator.

Reference Documents

Title	Document Number
ATM34/e Series Datasheet	6494-xxxx-xxxx
ATM34/e Series Evaluation Kit User Guide	6441-xxxx-xxxx
Understanding Low Power Mode Application Notes	4288-xxxx-xxxx

Revision History

Date	Version	Description
October 20, 2025	0.52	Updated Evaluation Board Setup
September 8, 2025	0.51	Updated with Zephyr OpenAir SDK release
July 17, 2024	0.50	Initial version created



ATMOSIC TECHNOLOGIES – DISCLAIMER

This product document is intended to be a general informational aid and not a substitute for any literature or labeling accompanying your purchase of the Atmosic product. Atmosic reserves the right to amend its product literature at any time without notice and for any reason, including to improve product design or function. While Atmosic strives to make its documents accurate and current, Atmosic makes no warranty or representation that the information contained in this document is completely accurate, and Atmosic hereby disclaims (i) any and all liability for any errors or inaccuracies contained in any document or in any other product literature and any damages or lost profits resulting therefrom; (ii) any and all liability and responsibility for any action you take or fail to take based on the information contained in this document; and (iii) any and all implied warranties which may attach to this document, including warranties of fitness for particular purpose, non-infringement and merchantability. Consequently, you assume all risk in your use of this document, the Atmosic product, and in any action you take or fail to take based upon the information in this document. Any statements in this document in regard to the suitability of an Atmosic product for certain types of applications are based on Atmosic's general knowledge of typical requirements in generic applications and are not binding statements about the suitability of Atmosic products for any particular application. It is your responsibility as the customer to validate that a particular Atmosic product is suitable for use in a particular application. All content in this document is proprietary, copyrighted, and owned or licensed by Atmosic, and any unauthorized use of content or trademarks contained herein is strictly prohibited.

Copyright ©2023-2025 by Atmosic Technologies. All rights reserved. Atmosic logo is a registered trademark of Atmosic Technologies Inc. All other trademarks are the properties of their respective holders.



Atmosic Technologies | 2130 Gold St #200 | San Jose, CA 95002
www.atmosic.com