Amazon ARGUS RFID Reader Datasheet

1. Overview

The Amazon ARGUS is a high-performance, 16-port UHF RFID reader designed for fixed installations requiring fast, reliable EPC-class tag detection. ARGUS integrates the Silion SIM7400 RFID module with a custom interface PCB, providing a streamlined solution for inventory tracking, asset monitoring, and real-time sensing in enterprise environments.

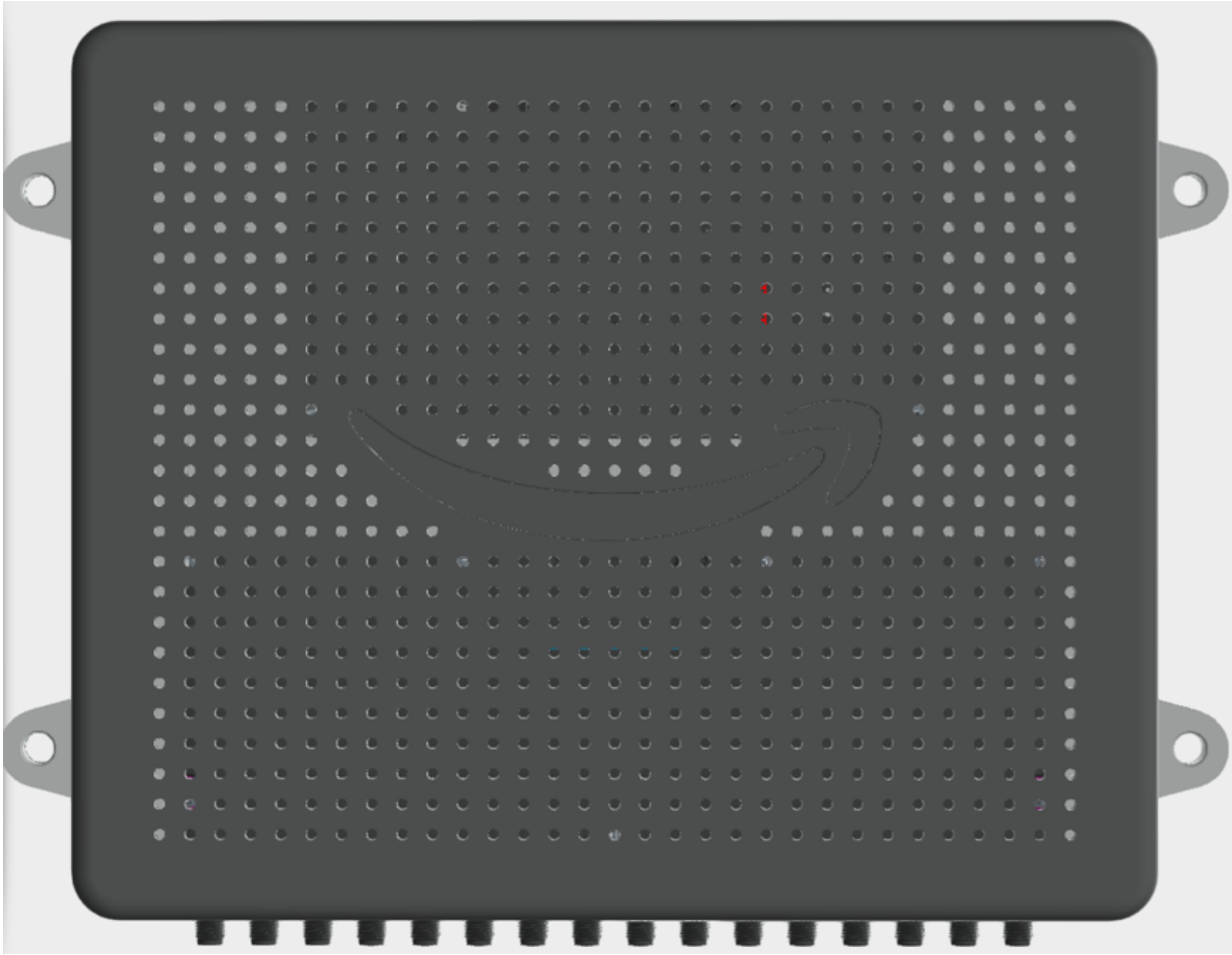

Figure 1 - Amazon ARGUS Assembled Unit

2. System Architecture

Below is a high-level overview of Amazon ARGUS:

- **RFID Module:** Silion SIM7400 (Impinj E710-based)
- **Interface PCB:** USB-UART bridge, power regulation, GPIO control
- **External Connectivity:** USB-C for data, DC input for power
- **Antenna Connectivity:** 16 coaxial UHF ports

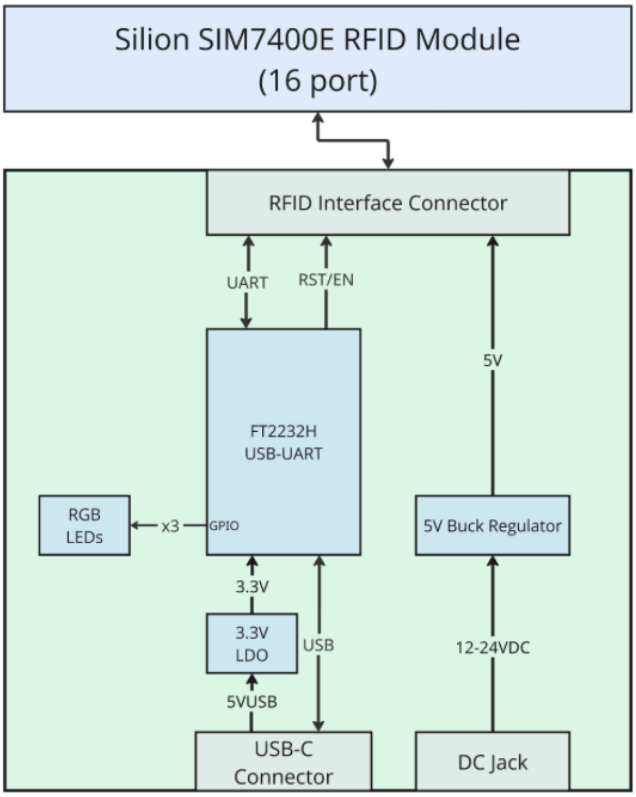

Figure 2 ARGUS Block Diagram

3. Product Description

3.1 User Interface

The front interface provides essential connectivity and status indication:

- **Status LED:** Fully user-programmable indicator for application states or diagnostics
- **USB-C Connector:** Main communication interface to a host PC
- **DC Power Input:** External DC supply input for powering the RFID module and internal electronics

Figure 3 Front User Ports

The rear panel contains:

- **Sixteen (16) UHF Antenna Ports:** Individually addressable ports enabling multi-zone read coverage.

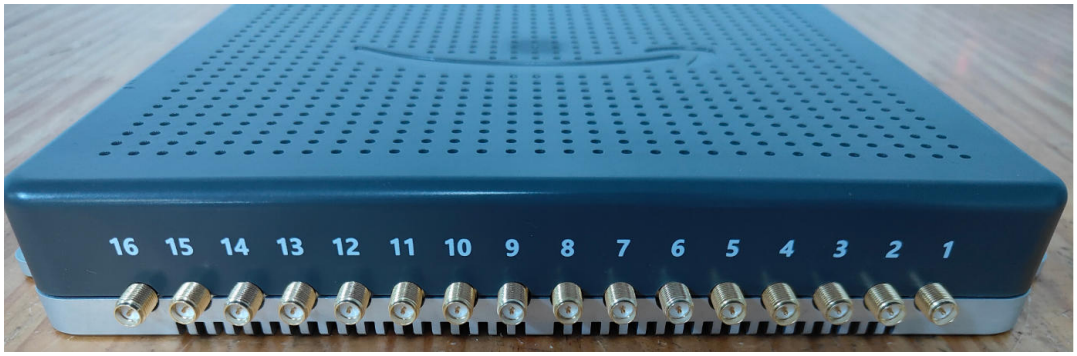

Figure 4 Rear RFID Antenna Ports

3.2 RFID Engine

Amazon ARGUS uses the Silion SIM7400 module, a high-performance 16-port UHF reader module based on the Impinj E710 chipset.

Key capabilities include:

- **Protocols Supported:** EPC Global Gen2 (ISO 18000-6C)
- **Transmit Power:** Adjustable from 5 dBm to 30 dBm (±1 dBm)
- **Receiver Sensitivity:** -86 dBm
- **Dense Reader/Anti-Collision Performance:** Optimized for high-tag-count environments
- **Real-Time Telemetry:** Temperature, RSSI, antenna detection, and other diagnostics

These characteristics make the module suitable for deployments requiring:

- Multi-antenna scanning
- High-rate tag inventory
- Reliable read performance across varying RF conditions

Figure 5 Silion SIM7400 RFID Module

3.3 Interface PCB

The interface PCB integrates the RFID module with standard host systems and performs all required power and signal management.

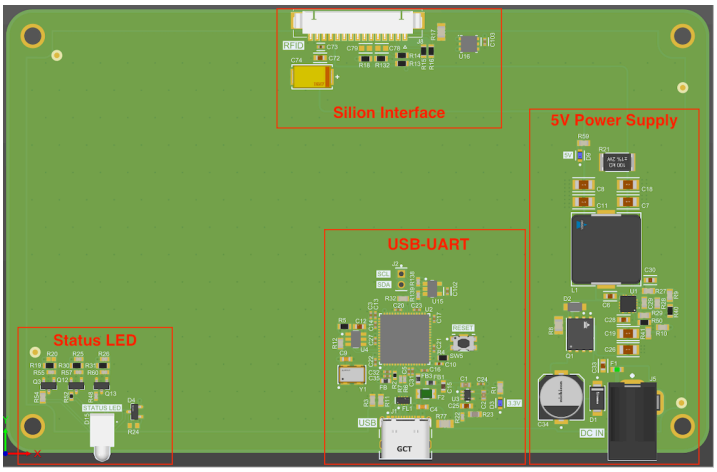

Figure 6 Interface PCB

USB–UART Bridge

- FT2232 Dual-Channel USB-UART IC
- Provides high-speed UART communication to the SIM7400 module
- Exposes additional channels for GPIO and LED control

Power Subsystem

- Dedicated 5V / 5A regulated power rail
- Designed to meet the peak consumption of the SIM7400 during maximum transmit power

Silion Interface Header

- Power (5V / GND)
- UART TX/RX
- GPIO lines for module enable, reset, and general control

Status LED

- Controlled through the FT2232
- User-programmable for read events, errors, or system heartbeat

4. Software Integration

ARGUS communicates with the SIM7400 through a direct serial channel exposed via USB. This allows:

- Access to official Silion APIs with no custom driver layer
- Simple PC integration with either Java, C, or C#/.NET
- Easy implementation of high-level functions including:
    - Tag inventory
    - Antenna switching
    - Region configuration
    - Power adjustments
    - Real-time telemetry

Because the system uses standard UART-over-USB, it is compatible with most operating systems without additional software requirements beyond Silion's SDK.

5. Technical Specifications

The following specifications are derived from the Silion SIM7400 RFID module and apply to the Amazon ARGUS.

Physical parameters	
Dimension	217mm * 180mm * 36.25mm
Net weight	≤1Kg
RF parameters	
Protocol	EPC Class 1 Gen 2 (ISO 18000-6C)
Frequency	902-928MHz FCC (NA, SA)
	865-868MHz (ETSI)
CPU	ARM7
Reader Chip	Impinj E710
Antenna interface	16 SMA connectors
RF output	5dBm-33dBm （2W）adjustable(±1dBm)
Operating mode	Fixed/hop frequency
Tags RSSI value	Support
Antenna detection	Support
Reader operating temperature detection	Support
RF performance	
Tag read rate	≥900 tags/s
Reading distance	≥22m, with 8dBi antenna, writing distance is about 50% of the reading distance*(1)
Development interface	
Silion API	C, C#/.NET, Java

Hardware interface	
Indicators	Status indicator
Communications	USB 2.0
Power supply/consumption	
Power supply	Power supply 12-24V standard with adapter 12V/3A
Power consumption	Standby 2.5W, working 13.5W (max)
Environment	
Storage Temp	-40°C - +80°C
Humidity	5-90% non-condensing (+25°C)
Security	
Device	Contact discharge: 6KV, EFT:2KV

Figure 7 Technical Specifications

FCC Warnning:

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection againstharmful interference in a residential installation. This equipment generates, uses and can radiateradio frequency energy and, if not installed and used in accordance with the instructions, maycause harmful interference to radio communications. However, there is no guarantee thatinterference will not occur in a particular installation. If this equipment does cause harmfulinterference to radio or television reception, which can be determined by turning the equipmentoff and on, the user is encouraged to try to correct the interference by one or more of thefollowing measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Caution: Any changes or modifications to this device not explicitly approved by manufacturer could void your authority to operate this equipment.

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1)This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.