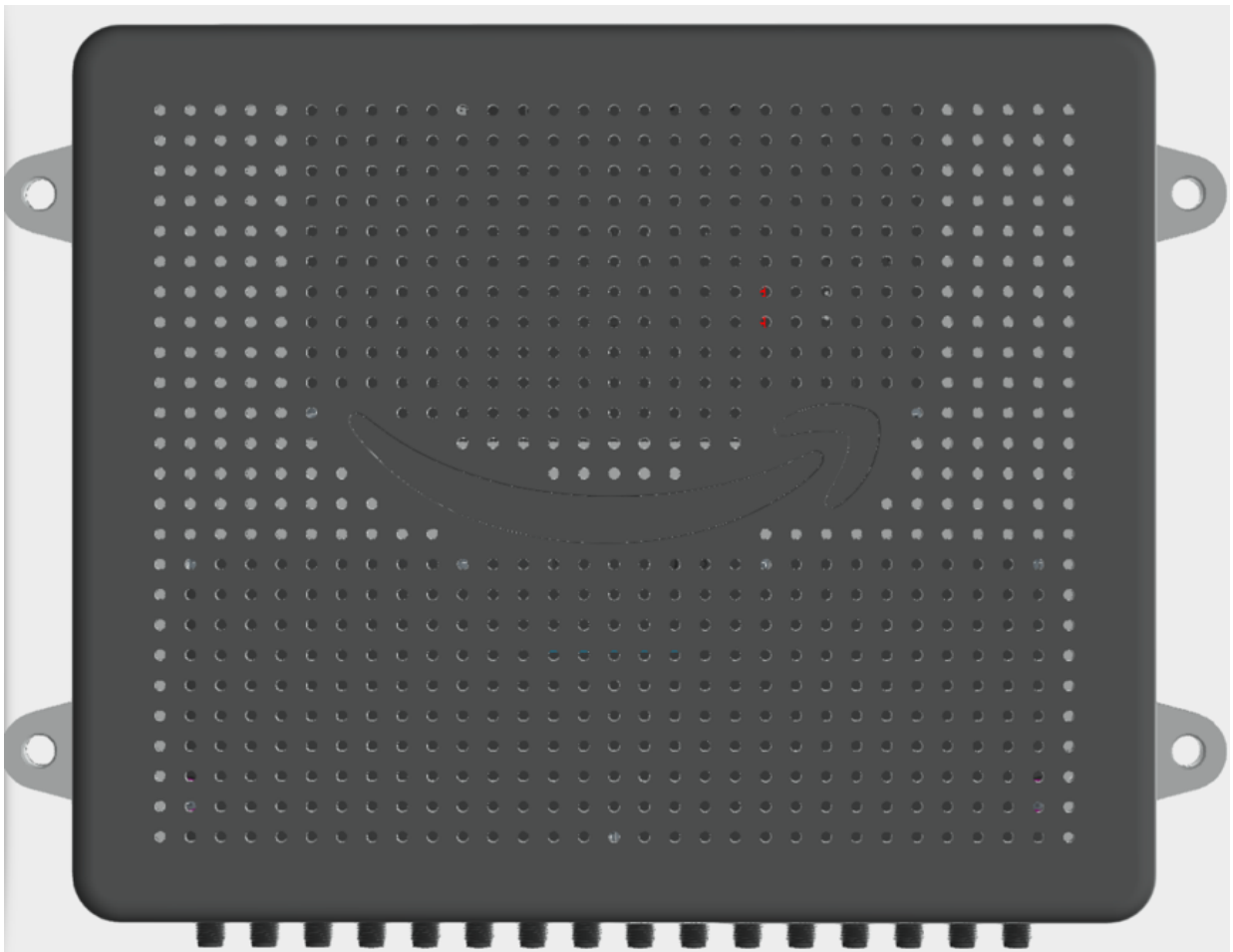


# Amazon ARGUS RFID Reader Datasheet

## 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 Sillion 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:** Sillion 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

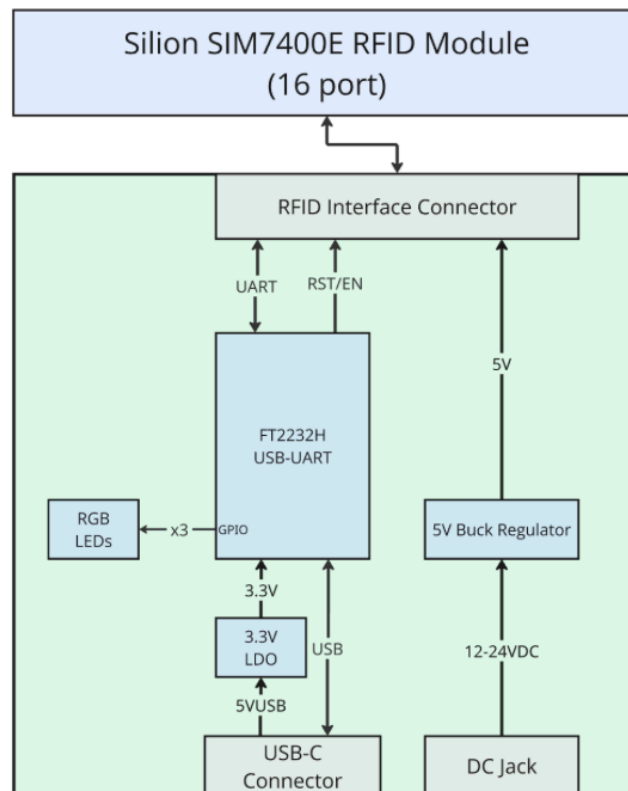


Figure 2 ARGUS Block Diagram

## 3. Product Description

### 3.1 User Interface

The front interface provides essential connectivity and status indication:

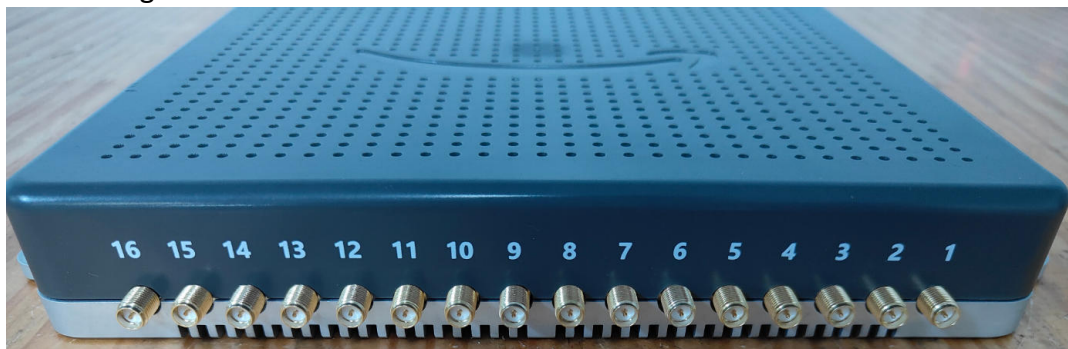
- **Status LED:** Fully user-programmable indicator for application states or diagnostics
- **USB-C Connector:** Main communication interface to a host PC
- **DC Power Input:** External DC supply input for powering the RFID module and internal electronics



*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 Sillion 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 ( $\pm 1$  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:

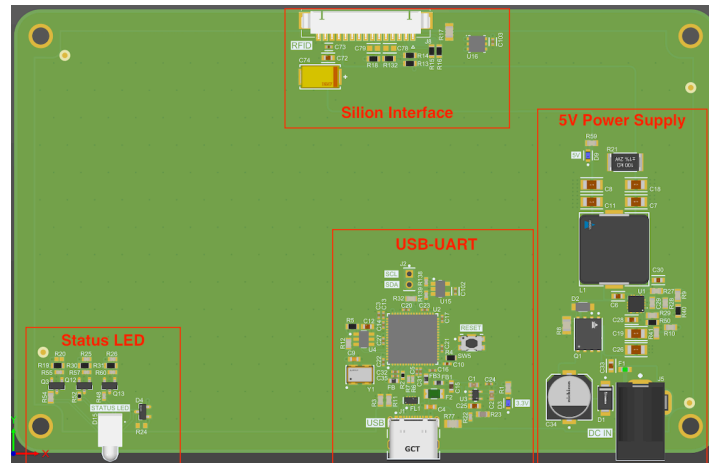
- Multi-antenna scanning
- High-rate tag inventory
- Reliable read performance across varying RF conditions



*Figure 5 Sillion 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 Warning:**

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 against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following 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.