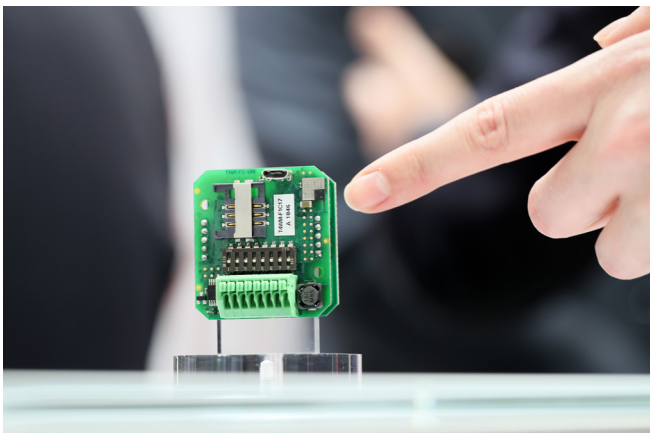
ELATEC
RFID Systems

RFID JOURNAL

This article was published in August 23, 2020 Issue of RFID Journal

ELEVEN CONSIDERATIONS FOR EMBEDDED SYSTEM RFID READERS



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This article is an overview and the first in a series on considerations for embedded system RFID readers for embedded engineers, solution architects and product managers.

Today, RFID readers can be found in numerous devices requiring user authentication, authorization and access control, from doors to multifunction printers to point of sale terminals to computers and more.

RFID is a simple, secure and convenient access control solution for end users and original equipment manufacturers. RFID readers/writers come with a broad range of form factors, capabilities and configurations.

When choosing a reader to embed into a system or device, it is important to make sure it fully meets all of your design specifications. You also need to make sure it will continue to meet your needs for years to come as device specification and end user requirements change.

Here are eleven considerations – and some specific questions to ask – for product managers, embedded system engineers and solution architects when choosing an RFID design-in module solution:

1. TRANSPONDER TECHNOLOGIES

+ Does the reader support all of the card technologies used by your customers?
+ How much diversity exists in card technologies used by your client base?
+ How many clients need to support multiple card technologies across their organizations?

2. MOBILE DEVICE ACCESS

+ Does the reader support smartphone authentication for users wanting mobile device access?
+ Do you anticipate your client base shifting to smartphone authentication in the future?

3. ADDING TRANSPONDER TECHNOLOGIES

+ Do you anticipate needing to add new transponder technologies in coming years?
+ Does the reader support addition of new transponder technologies after installation?

4. POST-INSTALLATION RECONFIGURATION

+ How easy is it to reconfigure the reader after installation?
+ Does the reader support contactless upgrades and configuration in installed devices?
+ Does the reader support remote configuration?

5. CUSTOMIZATION

+ Does the reader have reconfiguration flexibility for integration?
+ How does the reader integrate with hardware systems or back-end software?
+ Can the communication or security protocols be customized?
+ Does the reader have the ability to control user feedback (e.g., lights or sounds)?

6. HARDWARE COMMUNICATION INTERFACE

+ Is the communication interface for the reader compatible with the requirements of your system?
+ How much flexibility do you have in choosing a hardware interface?

7. FORM FACTOR

+ Does the reader fit into the form factor of your device?
+ Will the size or form factor of the reader require design alternations to accommodate?

8. INTERNAL VS. EXTERNAL ANTENNA

+ Do you intend to develop your own external antenna with an RFID engine/module or do you need a finished product with embedded antennas?
+ When do you choose a device that has integrated antennas over developing an external custom RF antenna?
+ How can RFID modules without antennas be integrated?

9. OPERATING POWER AND CONSUMPTION REQUIREMENTS

+ Does the reader meet voltage requirements for your device?
+ How much power does the reader consume when in use?
+ How much power does the reader consume when not active?

10. SECURITY

+ Does Your Application Require Encryption Capabilities? If So, Does the Reader Have the Capability to Execute Cryptographic Algorithms?
+ Do You Require Encrypted Data Exchange? If So, Where and Can the Card Reader Support This?
+ Does Your Application Require MUTUAL Authentication with Secure Access Modules (SAM) and RFID Media? If So, Does the Reader Support This?
+ Does the Card Reader Have Communication Interfaces Other Than Wiegand Such as RS485 or RS232?
+ Do You Require Tamper Detection Technologies? If So, Can the Reader Meet This Requirement?
+ Do You Require the Reader's Configuration or Firmware to be Securely Shared or Loaded on the Card Reader? If So, Can the Reader Meet This Requirement?

11. CERTIFICATIONS AND COMPLIANCE

+ What kinds of certifications and standards must your device meet to sell into your target markets?
+ Does the reader meet all certification and compliance requirements?

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