Cross-product properties

The following features are common to all BALTECH readers. They make our devices a simple and widely applicable solution in a variety of projects.

Autonomous operation – highly customizable

Easy to integrate into existing systems

If your background system is already set, you can adapt the readers to it via their configuration. Changes to the host software aren't necessary: In autonomous operation, referred to as "Autoread" mode, the readers don't need to be controlled.

Implement complex processes without development effort

You can define extensive actions directly in the configuration:

- **Check routines:** Create blacklists or whitelists to restrict valid number ranges. Based on these rules, the reader verifies card data and initiates the follow-up action you specify.
- **I/O behavior:** Feedback to the user, e.g. upon card presentation or keypress, is configured in all readers' factory settings - customizable in detail with a few clicks. On request, we implement individual I/O behavior, whether for switching a relay or for complex sequences with time dependencies. Available at a favorable flat rate – and at short notice, thanks to the high level of reader configurability.

Easy to set up via software tools

Create and manage configurations without expert knowledge, also as an end customer. All you need is *BALTECH ToolSuite*, a set of easy-to-use and free applications (see also the data sheet „*ToolSuite*"):

Configuration based on forms

Use predefined forms to create the configuration for your project. Thanks to automatic versioning, you keep track of different configuration states. For special requirements, you can order a tailor-made project-specific form or a complete, ready-to-deploy configuration.

Test it on your PC

Test the configuration right on your computer. No connection to the host system required.

Convenient rollout

For each reader type, deployment is supported via various interfaces - including contactless options, of course.

Respond flexibly, even to unforeseen changes

If requirements change during operation, all you need to do is adjust the configuration. Thanks to wireless deployment, you can easily update readers after installation as well.

Security at every step of the process

Key sovereignty remains with the end customer

In most cases, the provider of the overall solution creates the configuration. However, end customers can enter the secret project keys themselves and thus maintain confidentiality. With our software tools, this process works conveniently – no expert knowledge needed. Alternatively, end customers can transfer sovereignty over the required keys to the provider.

End-to-end encrypted configuration

Thus, the configuration including project keys is protected during transmission and can only be decrypted on the readers themselves.

Protection against tampering

Check mechanisms in the reader prevent unauthorized reconfiguration or rollback to old and potentially insecure configuration versions.

Encrypted host communication

Encrypted host communication can be implemented as an option. Via flexible access conditions, you can define permissions in detail - also separately for different applications.

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Card-type-independent commands

For developers of custom host applications, we have designed the macro command set *VHL (Very High Level)*: You can use it to implement all common use cases without detailed knowledge of the card system.

Project-independent code

With VHL commands, you write universally applicable code, independent of the card system. You can e.g. write an application for MIFARE DESFire cards and later use it with LEGIC cards as well – no code changes required. Specify all card-type-specific information right in the reader configuration. With our software tools, this is a simple and secure process (see previous page).

Few, very powerful VHL commands

Perform extensive operations, each with only one command:

- Read or write even large amounts of data at high speed, e.g. locking plans or biometric data.
- Integrated handling of communication errors, e.g. via retry mechanisms, ensures reliable results.

If needed, you can also use low-level commands for your respective card system and thus make use of its full functionality. All major card systems are supported; on request, we can add further commands at short notice.

Flexible and convenient control

Wide host interface compatibility

The most common host interfaces are supported out of the box – many more can be activated via the reader configuration with just a few clicks. You can also use multiple interfaces in the same project.

Full control over reader hardware

If needed, you can control the entire reader behavior from your host application:

- Switch LEDs, beeper, relay, and other I/O ports.
- Deploy firmware and configuration updates.

SDK for easy implementation

- Set up the physical interfaces with just one command.
- Get convenient access to the command reference – via IntelliSense directly in the IDE.
- App notes provide you with sample implementations for the most common use cases.
- Integrated monitoring of data traffic supports troubleshooting
- Available for Windows, macOS, and Linux

Our services

Custom hardware and firmware development

From proprietary host protocols to custom antenna design, we implement even highly specific requirements. In-house development, design, and production ensure cost-efficient and high-quality results.

Project card service

You can obtain your project cards including application structure directly from us. If you already have cards and need to apply or extend the application structure, we provide you with our handy *Card Formatter* tool as well as best practice guidelines for the organizational process (see also the data sheet „*Card Formatter*“).

Configuration service

You can order your project configuration from us. For large reader quantities, we also offer configuration rollout during production.