

ID-engine ZM Module

RFID | NFC | Bluetooth®

Multi-frequency read module with integrated antenna

ID-engine ZM Module is BALTECH's technological flagship: It's the basis of ZB Brick and the technological core of ACCESS200, ensuring full feature scope and consistent behavior across products. Used as a compact module, it becomes a versatile embedded solution, e.g. in vending machines, industrial PCs, or terminals.

Easy to mount

- Unlike many open reader modules, ID-engine ZM Module is enclosed in an ultra-compact housing.
- 2 mounting strips facilitate installation.

Insensitive when integrated in metal

- You can install the module is not only on, but also flush with metal.
- The module size is dimensioned so that the required cutout around the housing matches the size of a project card - this ensures optimal read range.
- For detailed guidelines for metal environments, please visit docs.baltech.de/metal

FCC Device Approval

Clear advantage in the US market: Unlike modules with Modular Approval, ID-engine ZM can be integrated without requiring a note on the final product.

Uncomplicated updates

- Firmware and configuration updates via USB, RS-232, or NFC
- The configuration can also be updated with BALTECH ConfigCard.

Product lines for differing requirements

For cost optimization, we offer 2 product lines, each supporting different card systems:

- **ISO product line** (10115) for 13.56 MHz card systems based on ISO standards
- **LEGIC product line** (10117) for the proprietary LEGIC card system with limited functionality

In the full version, both product lines support 125 kHz, 13.56 MHz, NFC, and Bluetooth Low Energy.



What all BALTECH readers have in common:

- **Comprehensive RFID support**
All common card systems and key fobs

Learn more in the data sheet „Supported card types“.

- **Autonomous operation – highly customizable**
Configure RFID and host interface, check routines, and I/O behavior with our software tools – no expert knowledge needed.
- **Card-type-independent command set „VHL“**
Develop custom applications with minimal effort.
- **Custom hardware and firmware development**

Learn more in the data sheet “Cross-product properties”.

Technical data

Mechanical

Dimensions	57 (48) x 35 x 9 mm
Weight	11 g
Housing material	Makrolon translucent

Power supply

Supply voltage	4.6...5.5 VDC
I max. supply current	300 mA
I typ. supply current	120...140 mA

User interface

LED	RGB-LED Red/Green/Blue/+Mix Configurable color and intensity
Beeper	4000 +/- 300 Hz

Environmental

Operating temperature	-40...+60°C (-25...+60°C for 10117 product line) Wider temperature range on request
Operating humidity (rel.)	5...90% non-condensing
MTBF	200,000 h

RFID interface

13.56 MHz	Read range: 20...80 mm typ; Field strength: Hmin = 1.5 A/m @ 20 mm, Hmin = 0.15 A/m @ 80 mm Standards: ISO 14443 A/B, ISO 15693, NFC Optimized for key fob compatibility and metal mounting insensitivity
125 kHz	Read range: 20...80 mm typ; Standards: LF 125 kHz ASK, FSK, PSK
Mobile ID/Bluetooth Low Energy v4.2	Read range 0.2...15 m, adjustable; BALTECH protocol based on Bluetooth Low Energy for BALTECH Mobile ID (smartphone app for access control etc.; learn more in the data sheet „ <i>Mobile ID</i> “ und at docs.baltech.de/mobile-id-overview) Low-level access for the development of custom applications on request
RFID scan duration	Full sequential cycle 450 ms (multi-frequency product line)

Host interfaces

Out of the box	USB Optional: UART (RS-232 or 5V CMOS)
On request	CMOS 3.3 V, Wiegand, Magstripe emulation, I2C

SAM slot

Slot for a Secure Access Module (SAM), which serves as a secure storage location for project keys and handles encrypted communication with project cards (learn more at docs.baltech.de/sam).

ISO SAM slot	Optionally built-in 3.3 V 50 mA (peak 100 mA) ISO 7816 interface for MIFARE SAM AV2, -3 and HID iClass SE Processor. Further SAM support on request
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More details

For more technical data, please visit docs.baltech.de/id-engine-z

3D files (STP format) are available in the [download area](#) of our website.

For an overview of standard articles, refer to the data sheet „*Orderable Items*“.

