TWN3 MIFARE M

INTEGRATION MANUAL
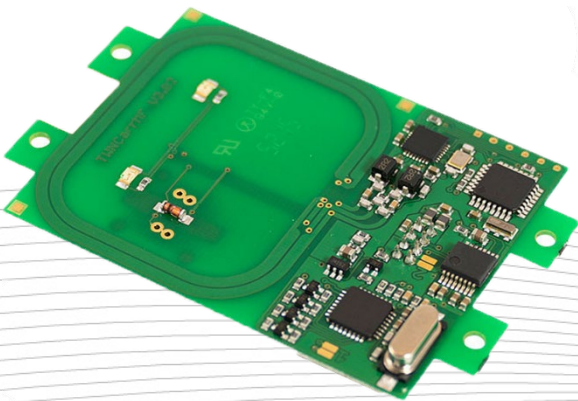
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1 INTRODUCTION

1.1   ABOUT THIS MANUAL

This integration manual explains how to integrate ELATEC RFID reader module TWN3 MIFARE M into a host device and is mainly intended for integrators and host manufacturers.

The content of this integration manual is subject to changes without prior notice and printed versions might be obsolete. Integrators and host manufacturers are required to use the latest version of this integration manual.

For the sake of better understanding and readability, this manual might contain exemplary pictures, drawings and other illustrations. Depending on your product configuration, these pictures might differ from the actual design of your product.

1.2   ABOUT TWN3 MIFARE M

The TWN3 MIFARE M RFID reader module is designed for easy integration into various applications. This device supports either USB or RS-232 communication just in dependence on the connection cable and is available as an OEM board (PCB) without housing for direct integration into embedded applications. The reader module can be programmed with a scripting language for autonomous execution of even complex commands like login procedures, increment/decrement functions and many more.

1.3   ELATEC SUPPORT

In case of any technical questions, refer to the ELATEC website (www.elatec.com) or contact ELATEC technical support at:

support-rfid@elatec.com

1.4   REVISION HISTORY

VERSION	CHANGE DESCRIPTION	EDITION
02	Chapter "Safety Information" updated, chapters "Technical Data" and "Integration in other devices" replaced by chapter "Integration Instructions", chapters "Compliance Statements" and "Integrators and Host Requirements" added	09/2021
01	First edition	02/2021

2 SAFETY INFORMATION

- ELATEC TWN3 MIFARE M is an electronic component and should be installed exclusively by a trained and qualified personnel.
- ELATEC recommends the integrators to follow general ESD protective measures during the installation of TWN3 MIFARE M into a host device, e.g. the use of an antistatic wristband or special gloves.
- The integrator should not touch the antennas (if not shielded), printed circuit boards, connectors or other sensitive components on TWN3 MIFARE M.
- Before installing TWN3 MIFARE M into a host device, the integrator should also make sure that he/she has read and understood the ELATEC technical documentation related to TWN3 MIFARE M, as well as the technical documentation related to the host device. In particular, the instructions and safety information given in the user manual of TWN3 MIFARE M should be read carefully and listed in the technical documentation of the host manufacturer as well, as soon as these instructions and safety information are required for a safe and proper use of the host device containing TWN3 MIFARE M.

3 INTEGRATION INSTRUCTIONS

3.1 GENERAL

TWN3 MIFARE M may be installed in any host devices, as long as it is operated under the operational conditions stated in the user manual and other technical documents (e.g. data sheet). TWN3 MIFARE M is equipped with one integrated antenna. Thus, no antenna installation is required.

3.2 LIST OF APPLICABLE RULES

Refer to the approval certificates, grants and declarations of conformity issued for TWN3 MIFARE M, and to Chapter "Compliance Statements" for a detailed list of the rules applicable to TWN3 MIFARE M.

3.3 SPECIFIC OPERATIONAL USE CONDITIONS

There are no specific operational use conditions for TWN3 MIFARE M other than the conditions mentioned in the user manual and data sheet of TWN3 MIFARE M. The host manufacturer or integrator must ensure that these use conditions comply with the use conditions of the host device. In addition, these use conditions must be stated in the user manual of the host device.

3.4 LIMITED MODULE PROCEDURES

n/a

3.5 TRACE ANTENNA DESIGN
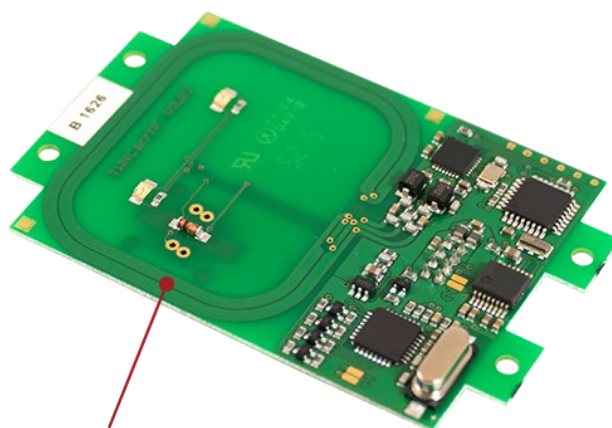
n/a

3.6 RF EXPOSURE CONSIDERATIONS

The module antenna(s) must be installed to meet the RF exposure compliance separation distance of 0 cm and any additional testing and authorization process as required.
Refer to Chapter "Compliance Statements" for detailed information about the radio frequency exposure conditions applicable to TWN3 MIFARE M.
These RF exposure conditions must be stated in the end-product manual(s) of the host product manufacturer.

3.7 ANTENNAS

TWN3 MIFARE M is equipped with the following antenna:

HF antenna

HF antenna (13.56 MHz)

Dimensions: 39.5 mm x 48 mm / 1.56 inch x 1.89 inch
Number of turns: 4

For more information, refer to the related product data sheet or other relevant technical documents.

3.8 LABEL AND COMPLIANCE INFORMATION

Refer to Chapters "Compliance Statements" and "Integrator and Host Requirements" for detailed label and compliance information.
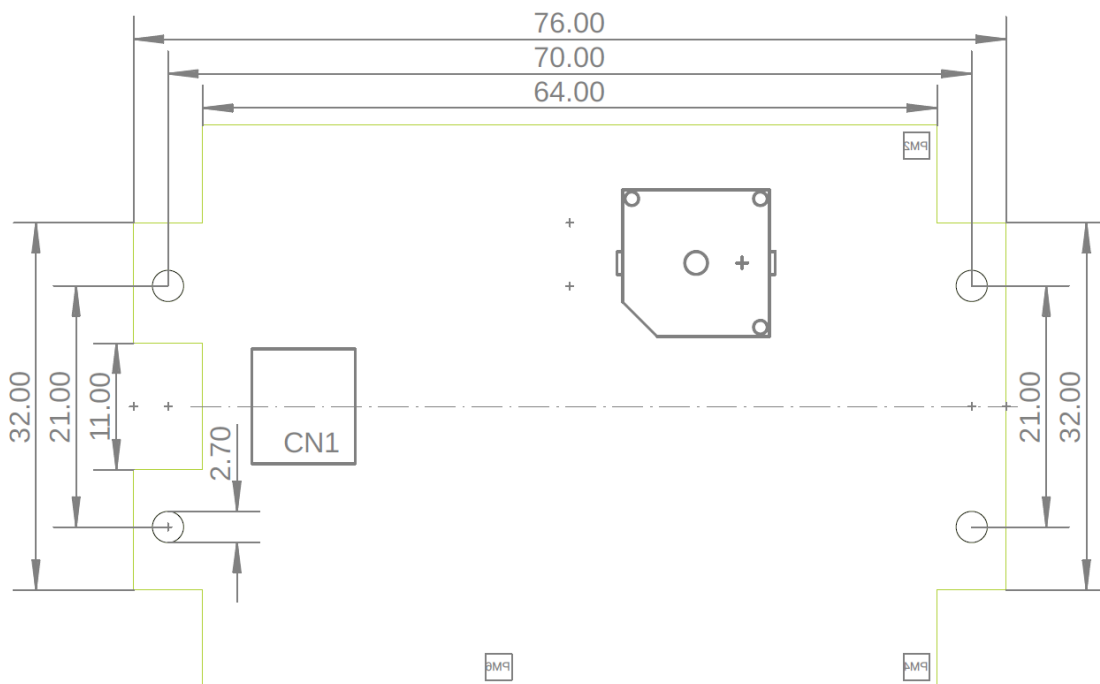
3.9 TEST MODES AND ADDITIONAL TESTING REQUIREMENTS

No specific testing method has been defined by ELATEC for TWN3 MIFARE M.
TWN3 MIFARE M has been tested and found in compliance with the specifications noted on the approval certificates and other relevant approval documents. However, the integrator is still responsible for any additional testing and authorization process required for the end product.

3.10 MECHANICAL INSTALLATION

The module can be fixed with 4 screws M2.5.

3.11 ELECTRICAL CONNECTION

PIN	FUNCTION
1	UGND
2	USB_D+
3	UVCC
4	USB_D-
5	V24_RXD
6	GND
7	V24_TXD
8	MGND

Tab. 1 - Pinout of CN1

3.12 PROGRAMMATION/SOFTWARE INTEGRATION

n/a

4 COMPLIANCE STATEMENTS

4.1 EU

TWN3 MIFARE M is in compliance with the EU directives and regulations as listed in the respective declaration of conformity.

4.2 RF EXPOSURE COMPLIANCE

RF exposure statement (mobile and fixed devices)
This device complies with the RF exposure requirements for mobile and fixed devices. However, the device shall be used in such a manner that the potential for human contact during normal operation is minimized.

5 INTEGRATOR AND HOST REQUIREMENTS

Compliance statements

All statements listed in Chapter "Compliance statements" of this integration manual must be also listed in the user manual of the host device.

Special accessories

Where special accessories such as shielded cables and/or special connectors are required to comply with the emission limits, the instruction manual shall include appropriate instructions on the first page of the text describing the installation of the device.

Simultaneous transmission

When the host product supports simultaneous-transmission operations the host manufacturer needs to check if there are additional RF exposure filing requirements due to the simultaneous transmissions. When additional application filing for RF exposure compliance demonstration is not required (e. g. the RF module in combination with all simultaneously operating transmitters complies with the RF exposure simultaneous transmission SAR test exclusion requirements), the host manufacturer may do his own evaluation without any filing, using reasonable engineering judgment and testing for confirming compliance with out-of-band, restricted band, and spurious emission requirements in the simultaneous-transmission operating modes. If additional filing is required please contact the person at ELATEC GmbH responsible for certification of the RF module.

APPENDIX

A – TERMS AND ABBREVIATIONS

TERM	EXPLANATION
host device	Also "host" or "host product". Device in which an RFID module is intended to be installed for operation.
Integrator	Responsible party for the integration of an RFID module into a host device. The integrator might be the module manufacturer, the host manufacturer, the end user or any other third party.
modular type	Physical configuration in which a modular transmitter operates when installed within a host device. It can be a single-modular, a limited single-modular, a split-modular or a limited split-modular type.
n/a	Not applicable
RFID (reader) module	Device intended to be used within another device or product. Depending on the equipment configuration and intended use, an RFID module has to meet different requirements to get a modular grant.

B – RELEVANT DOCUMENTATION

ELATEC documentation
- ELATEC quick start guide
- Transponder Reader TWN3 Technical Manual
- TWN3 MIFARE M data sheet
- TWN3 MIFARE M functional description
- TWN3 MIFARE M user manual

External documentation

Document name	Document title/description	Source
n/a	Technical documentation related to the host product	Host product manufacturer

For more information about this integration manual or TWN3 MIFARE M, go to www.elatec.com or contact ELATEC.

ELATEC GMBH

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