

**MAN0615C02 Rev.A01**

Description	User Manual – NFC (Gymkit) 5V RS232 board
Elettronica GF Srl Part No.	0615C
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**This technical literature is subject to change without notice.**

**Please contact Elettronica GF s.r.l. or its representative before designing your product based on this specification**

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### 1. Notice and Restricted use Information

Information contained in this document is provided only for your ("Costumer" or "you") convenience and may be superseded by updates. It's your responsibility to ensure that your application meets your specifications.

Elettronica GF makes no representations or warranties of any kind whether express or implied, written or oral, statutory or otherwise, related to the information, including but not limited to its condition, quality, performance, merchantability or fitness for purpose. Elettronica GF disclaims all liability arising from this information and its use.

Elettronica GF does not assume any responsibility for the use of the described modules.

Elettronica GF makes no representation with respect to the adequacy of the module in low power wireless data communications applications or systems. Any Products using the module must be designed so that a loss of communications due to radio interference or otherwise will not endanger either people or property, and will not cause the loss of valuable data. Elettronica GF assumes no liability for the performance of products which are designed or created using the modules.

The Modules are not designed, intended, or authorized for use components in systems intended for surgical implant into the body, or other applications intended to support or sustain life, or for any application in which the failure of the Module could create a situation where personal injury or death may occur. If you use the modules for such unintended and unauthorized applications, you do so at your own risk and you shall indemnify and hold Elettronica GF and its officers, employees, subsidiaries, affiliates, and distributors harmless against all claims, costs, damages, and expenses, and reasonable attorney fee arising out of, directly or indirectly, any claim of personal injury or death associated with such unintended or unauthorized use, even if such claim alleges that Elettronica GF was negligent regarding the design or manufacture of the Product.

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Elettronica GF believes the information contained herein is correct and accurate at the time of its release. However, the information contained in this document is subject to change without notice and should not be construed as a commitment by Elettronica GF unless such Commitment is expressly given in a covering document.

## 2. Regulatory Approvals and Compliance

Modules NFC (Gymkit) 5V RS232 board have received regulatory approvals in the United States (FCC) and Canada (IC). Such approvals and qualification allows the user to place the module inside a finished product and, in most cases, not require regulatory testing for an intentional radiator, provided no changes or modifications are made to the module circuitry. This does not preclude the possibility that some other form of authorization or testing may be required for the finished product.

Changes or modifications could void the user's authority to operate the equipment. The end user must comply with all of the instructions provided by the Grantee, which indicate installation and/or operating conditions necessary for compliance.

## 2.1. United States FCC Part 15

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the manufacturer's instruction manual, may cause interference with radio and television reception. This equipment has been tested and found to comply with the limits for Class B digital device pursuant to Part 15 of the FCC Rules.

- 1- This device may not cause harmful interference
- 2- This device must accept any interference received, including interference that may cause undesired operation.

**NOTICE:** The FCC regulations provide that changes or modifications not expressly approved by Elettronica GF s.r.l. could avoid your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the system with respect to the receiver
- Move the system away from the receiver
- Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of Elettronica GF s.r.l. or an experienced radio/television technician for additional suggestions.

The following information is provided on the device or devices covered in this document in compliance with the FCC regulations:

- Product name: NFC (Gymkit) 5V RS232 board
- Model Number: 0615C
- Company name: Elettronica GF s.r.l.

### End product labelling:

Using a permanently affixed label, the modular transmitter is labelled with its own FCC identification number, and,

If the FCC identification number is not visible when the module is installed inside another device, then the outside of the device in to which the module is installed must also display referring to the enclosed module.

FCC ID: 2ARDN0615C

## 2.2 Canada IC RSS-210

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1. This device may not cause interference
2. This device must accept any interference, including interference that may cause undesired operation of the device.

**NOTICE:** The IC regulations provide that changes or modifications not expressly approved by Elettronica GF s.r.l. could avoid your authority to operate this equipment.

These limits are designed to provide reasonable protection against harmful interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference with radio or television reception, which can be determined by turning the equipment off and on, you are encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna.
- Relocate the system with respect to the receiver
- Move the system away from the receiver
- Plug the system into a different outlet so that the system and the receiver are on different branch circuits.

If necessary, consult a representative of Elettronica GF s.r.l. or an experienced radio/television technician for additional suggestions.

The following information is provided on the device or devices covered in this document in compliance with the IC regulations:

- Product name: NFC (Gymkit) 5V RS232 board
- Model Number: 0615C
- Company name: Elettronica GF s.r.l.

### End product labelling:

Using a permanently affixed label, the modular transmitter is labelled with its own IC identification number, and,

If the IC identification number is not visible when the module is installed inside another device, then the outside of the device in to which the module is installed must also display referring to the enclosed module.

IC: 24364-0615D

### 3. Safety Instructions

The NFC (Gymkit) 5V RS232 board is a Mifare/NFC module of the Technogym S.p.a Devices (Equipment Cardio, Trainer point or Class Reader).

Read the Safety Instruction carefully and keep it for use later.

Beware of all warning and instruction signs marked on the NFC (Gymkit) 5V RS232 board.

Ensure that the ambient temperature around the module is between +5 °C and +50°C (with relative humidity between 5% and 85%).

### 4. NFC compatibility

The NFC module will be compatible with all NFC Key/Tag properties of Technogym S.p.A. in these tested range of resonance frequency:

Key type	Min resonance frequency	Max resonance frequency
TGS	14,2 MHz	15,0 MHz
Band	14,2 MHz	16,2 MHz

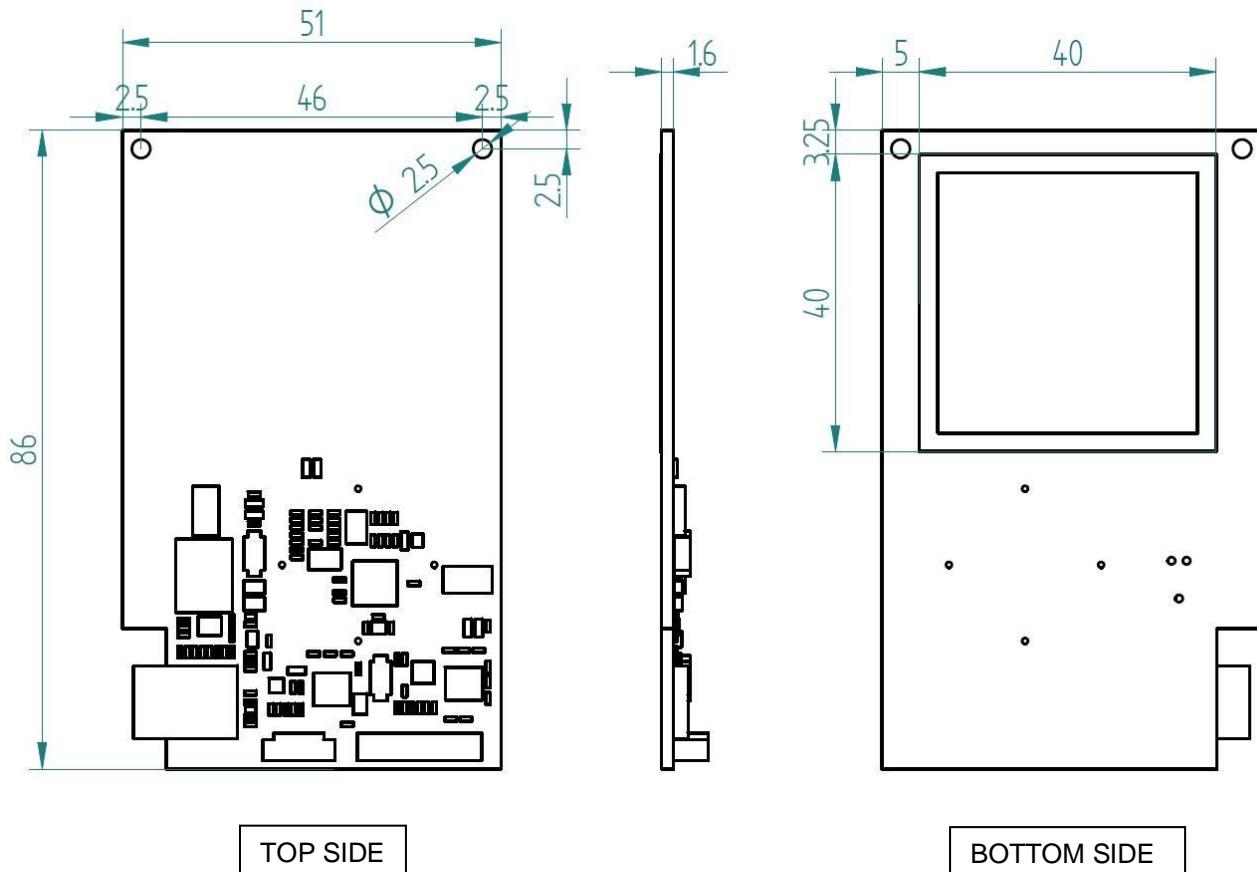
The NFC module will be compatible with all NFC tag / Key / Devices in accordance with:

- MIFARE Classic

## 5. Mechanical Dimension

The NFC (Gymkit) 5V RS232 board shows the following mechanical dimension:

The electronic board has all components on one side only and the connectors are all SMT type.



## 6. Operating Mode

The NFC(Gymkit) 5V RS232 board operates with both user keys based on Mifare protocol (TGS Mifare and Band Key) and NFC smartphones. The minimum reading distance with NFC devices must be at least 15 mm. In case of interaction with user key or smartphone NFC, the user data are not collected or stored by the reader. The reader make a "bridge" by protocol from user key or smartphone NFC to application connected to reader.

The NFC (Gymkit) 5V RS232 board operates with the following transmitter specifications:

- Work Frequency: 13,56 MHz
- Frequency Range: 13,553-13,567 MHz
- Electric Field @ 30m: < 0.5 mV/m

## 7. Labelling

The NFC (Gymkit) 5V RS232 board has labeling showing FCC ID code / IC code and Elettronica GF code.

