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Description	User Manual – NFC/BLE (Gymkit) 5V RS232 board
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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Information contained in this document is provided only for your ("Costumer" or "you") convenience and may be superseded by updates.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.

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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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2. Regulatory Approvals and Compliance

Modules NFC/BLE (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 manifacturer'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/BLE (Gymkit) 5V RS232 board
- Model Number: 0615G
- 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,

<u>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.</u>

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The final end product must be labelled in a visible area with the following:

Contains FCC ID: O6R3153, FCC ID: 2ARDN0615E

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 FCC regulations:

- Product name: NFC/BLE (Gymkit) 5V RS232 board
- Model Number: 0615G
- 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,

<u>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.</u>

Contains IC: 3797A-3153, IC: 24364-0615E

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3. Conditions of Use

The Modules NFC/BLE (Gymkit) 5V RS232 have been designed to support the ANT and/or Bluetooth low energy protocols by modules FCC ID 06R3153/ IC 3797A-3153 and are certified for use in many geographical region around the globe by the constructor DYNASTREAM INNOVATIONS INC. However, a product incorporating the Modules NFC/BLE (Gymkit) 5V RS232 may carry the certification IDs of the module only if it complies with the restrictions and terms, including use of Dynastream-approved software, provided in the conditions of use available at:

www.dynastream.com/components/d52/conditions-of-use

4. Safety Instructions

The NFC/BLE (Gymkit) 5V RS232 board is a BLE + 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/BLE (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%).

5. 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

6. BLE compatibility

The BLE module will be compatible with ANT and Bluetooth SoftDevices approved for use on the D52 Module series as referenced in “3.Conditions of Use” are licensed separately from Dynastream Innovations and Nordic Semiconductor:

SoftDevice	Protocol(s)	Licensor
S212	ANT	Dynastream Innovations
S332	ANT and Bluetooth low energy	Dynastream Innovations
S132	Bluetooth low Energy	Nordic Semiconductor

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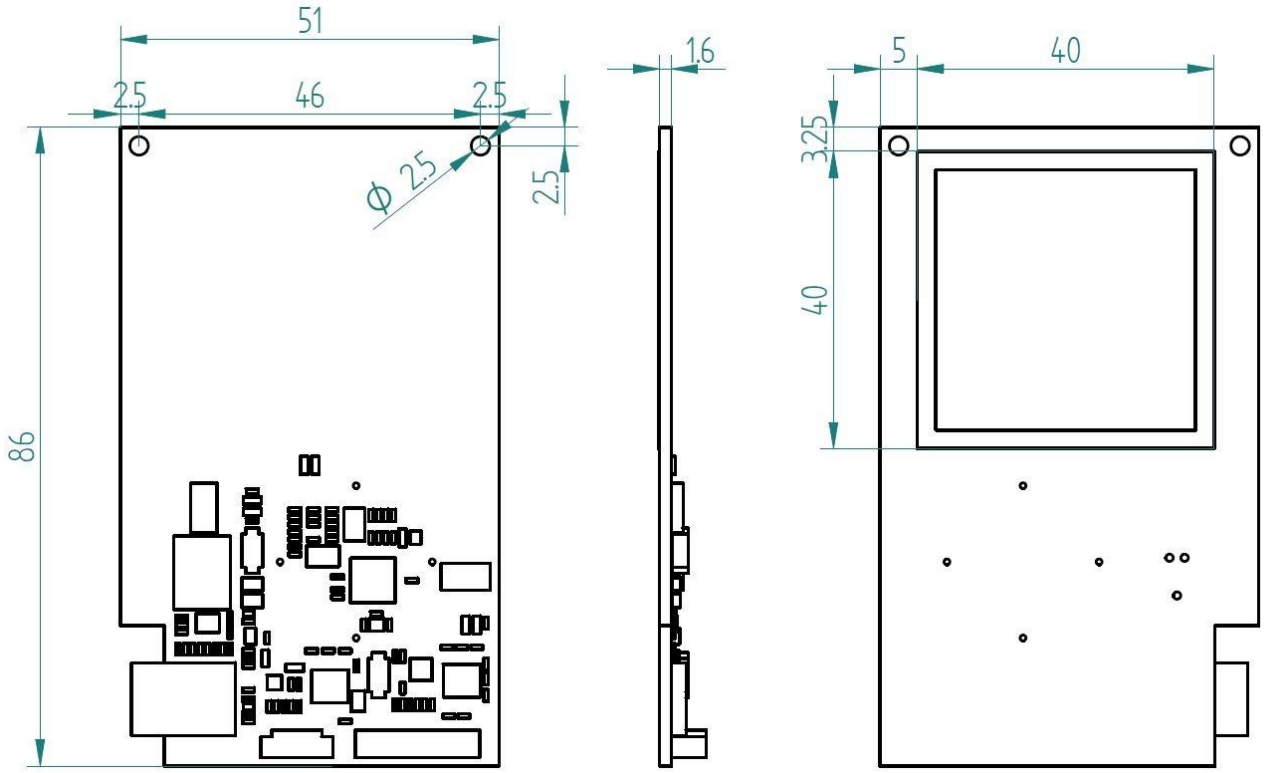
7. Mechanical Dimension

The NFC/BLE (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.



TOP SIDE

BOTTOM SIDE

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8. Operating Mode

The NFC/BLE (Gymkit) 5V RS232 board operate 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. If a BLE connection is established with external device, the reader receive data and transmit by RS232 to application connected to reader: the user data are not collected or stored by the reader.

The NFC/BLE (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

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9. Labelling

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

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