PROMAG QD60 Dual Frequency RFID Multi-ISO Protocol Modules User Manual

Contents

PROMAG™

PROMAG QD60 Dual Frequency RFID Multi-ISO Protocol Modules

Product Information

- **Product Name:** QD60 Dual Frequency RFID Multi-ISO Protocol Modules
- **Supported Interface:** USB 2.0 Full Speed
- **Supported Protocols:** ISO14443A, ISO15693, NFC, EM
- **Supported Card Types:** ISO14443A/B, ISO15693, ISO14443-4 T=CL, 125KHZ EM compatible
- **Power Supply:** Active 170mA @5VDC
- **Dimensions:** 60(L) x 30(W) x 12(H) mm
- **Weight:** 1.1g
- **Operating Temperature:** -0 ~ +50 degrees Celsius
- **Operating Humidity:** 10 ~ 90% relative humidity

Product Usage Instructions

1. Connect the QD60 module to a power source with a regulated 5V voltage.
2. Connect the QD60 module to a computer or device using the USB interface.
3. Ensure that the QD60 module is properly recognized by the computer or device.
4. To read or write RFID tags, position the module within the reading range of the tag, which is up to 20~40mm depending on the antenna and tag.
5. For ISO14443A/B or ISO15693 tags, follow the specific protocols and bit rates mentioned in the product information.
6. For NFC tags, ensure that the QD60 module supports ISO18092 Felica and NFC TAGs 1~4.
7. For 125KHZ EM compatible tags, follow the specific protocols mentioned in the product information.
8. For Mifare tags, the read range is approximately 1~3cm.

9. For ISO15693 tags, the read range is approximately 2~4cm.
10. For EM tags, the read range is approximately 1~3cm.
11. Use appropriate terminal programs or software (such as Visual C# demonstration software) to control and interact with the QD60 module.
12. For firmware updates, refer to the product manual for detailed instructions.

INTRODUCTION

- The QD60 is an OEM read/write module with an antenna designed for simple integration. The typical reading range of the module is up to 20~40mm depending on the antenna and TAG.
- The QD60 is an RFID Module for 125KHz EM and all popular 13.56-MHz RFID/contactless standard protocols.
- The QD60 supports and compatible with all major global secured baseband ISO standards including
- ISO14443 Type A, Type B, and Smartlabel ISO15693.
- The QD60 also supports a plug-and-play USB device with CCID and PC/SC compliance, ensuring interoperability with different systems and applications. It is ideal for secure personal identity verification and online micro-payment transactions, including computer log-on, e-payment, home banking, and network authentication.
- The QD60 is well suited for mobile devices due to its low power consumption and low operating voltage from 5V. The on-chip 3.3V regulators are provided to stabilize the chip's power, and simultaneously supply the power to the external companion microcontroller up to 150 mA.
- The QD60 supports the DLL and is easy to control this module, The ActiveX Control can be using any terminal program (VB .NET , C#…etc)

FEATURES

- **Supported Interface**
  - USB 2.0 Full Speed
- **CCID Compliance**
  - Supports PC/SC
- **Supported Protocols**
  - ISO14443A, all bit rates: up to 848 Kbps
  - ISO15693, all modes
  - Downlink 1 of 4 and 1 of 256
  - Uplink 6.6/13/26/53 kbps with 1 & 2 subcarrier
- **Card Compatibilities**
  - 13.56MHZ
  - NFC 1~4 TAGs
  - ISO14443A / B
  - ISO15693
  - ISO14443-4 T=CL
  - 125KHZ
  - EM compatible
- **Ultra small outline 60x30x12 mm**
- **Information Support**

    - Visual C# demonstration Software
    - Protocol Information
- **Low power, low profile for portable designed**
- **Plug-in fitting for 13.56Mhz**
- **Power supply Active 170mA @5VDC**
- **Firmware Update**

Standard Configurations:

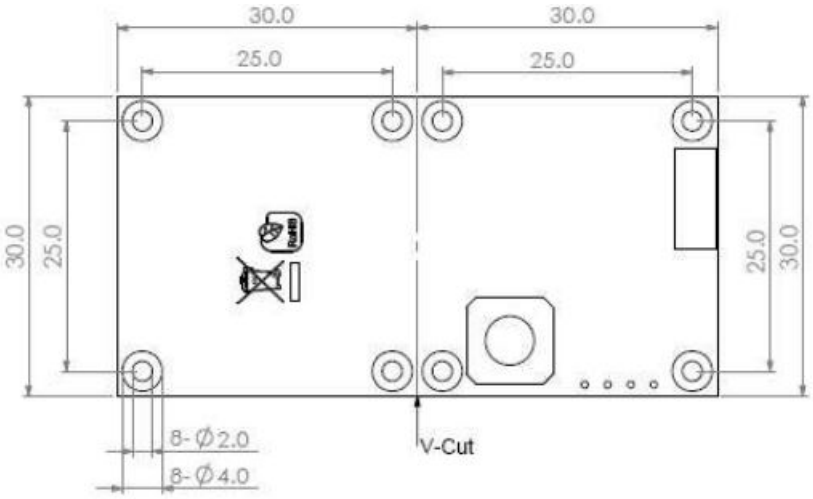
- QD60—- USB Interface

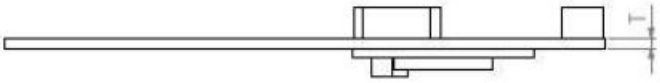
The specification is subject to change without notice.

SPECIFICATIONS

POWER REQUIREMENT	5V regulated for Operate Voltage . A linear regulator is recommended.
CURRENT REQUIREMENTS	Active 180mA @5VDC
INTERFACE	USB HID / USB CCID / USB Keyboard Interface
SUPPORTED PROTOCOLS	ISO14443A, all bit rates : 106 kbps , 212 kbps , 424 kbps , 848 kbps ISO15693, all modes Downlink 1 of 4 and 1 of 256 Uplink 6.6/13/26/53 kbps with 1 & 2 sub-carrier
CARD TYPE	**125KHZ** EM compatible
	13.56MHZ
	ISO 14443A
	MIFARE™Standard, MIFARE 4k, MIFARE Ultralight, MIFARE Ultralight
	C,MIFARE DESFireR,MIFARE DESFire EV1, DESFire EV2, DESFire EV3
	ISO 14443B
	Smartcard ISO14443B, SRI4K, SRI512
	ISO 15693
	SIC5600, ICODE-SLI, ICODE-SLI-L, ICODE-SLIS
	Read payware and paypass and E-passport
	ISO7816 T=CL
	NFC TAG 1~4 supportive
	ISO18092 Felica READ UID
FERQUENCY	125KHZ & 13.56MHz standard.
READ RANGE	Mifare : 1~3 cm ISO 15693 : 2~4 cm EM: 1~3 cm
TRANSPONDER	Read / Write
BAUD RATE	19200,N,8,1
DIMENSIONS	60(L) x 30(W) x 12(H) mm
WEIGHT	1.1g
ENVIRONMENT	Operating Temp : -0℃ ~ +50℃ Humidity : 10 ~ 90 % relative

PACKAGE DESCRIPTION





	QD60-00
Description	**USB**
Pin Numbers	**8**
Connector	**JST SH 1.0mm**
PIN#	
1	**+5 VDD**
2	**D-**
3	**D+**
4	**GND**
5	**SHIELD**
6	**—**
7	**—**
8	**—**

Antennas installation

Abridged general view QD60 ANT

INTEGRATION INSTRUCTIONS

1. **General:**
    - **Sections:** through 10 describe the items that must be provided in the integration instructions for host product manufacturers(e.g., OEM instruction manual) to use when integrating a module in a host product. This Modular transmitter applicant (GIGATMS) should include information in their instructions for all these items indicating clearly when they are not applicable.
2. **List of Applicable FCC Rules:**
    - **The product complies with the following FCC rules:**
    - **FCC Part 15B (EMC):** Electromagnetic compatibility requirements.
    - **FCCID:** WXAQD60
    - **FCC Part 15.225:** RF power requirements for induction-type wireless systems using the 13.56MHz frequency.
    - **FCC Part 15.209:** RF power requirements for intentional radiators operating in the 125KHz frequency range.
3. **Summarize the Specific Operational Use Conditions:**
    - This module needs to supply a regulated voltage from the host device. The QD60 module is designed for mounting inside the end product by our professional team. Therefore, it complies with the antenna and transmission system requirements of § 15.203. Follow the specific operational use conditions provided by GIGATMS for the proper integration and usage of the module.
4. **Limited Module Procedures:**
    - TO ensure proper operation, the QD60 module requires a regulated voltage supply from the host device. Typically, the host device should provide a power supply within the range of 5V, with 5V being the recommended voltage for this module.
5. **Trace Antenna Designs:**
    - The QD60 module comes with a built-in antenna. It is important to note that using antennas from other brands or making modifications to the antenna is not allowed. Follow the antenna integration guidelines provided by GIGATMS to ensure proper performance and FCC compliance.
6. **RF Exposure Considerations:**
    - This product, being a low-power consumption consumer wireless device, follows FCC regulations regarding RF exposure. Please note the following guidelines:
7. **a. Specific Absorption Rate (SAR) Testing:**
    - The product has undergone SAR testing to determine the amount of RF energy absorbed by the human body at various distances.
    - The test results ensure that the product operates within FCC limits to prevent excessive RF exposure to users.
8. **b. RF Exposure Distance:**
    - The product is designed to comply with FCC regulations regarding RF exposure limits at a safe distance from the human body.
    - Ensure that users maintain a distance of at least 20 centimeters or more from the product's radiator during installation and operation.
    - **Warning:** This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. It also complies with the FCC's radio frequency (RF) exposure guidelines. To ensure compliance, the radiator of this equipment should be installed and operated with a minimum distance of

at least 20 centimeters from the human body.

Antennas:

Antenna Port	Antenna model Name	Antenna Type	Properties
Chain0	PCB-T2853A	13.56MHz	L=3.4uH
Chain1	ANT-T044	125KHz	L=750uH

Specify that the QD60 module is equipped with its own antenna and emphasize that using other brand antennas or modifying the antenna is strictly prohibited.
Label and Compliance Information:
Contains Transmitter Module FCC ID: WXAQD60 or Contains FCC ID: WXAQD60

Include labeling requirements and compliance information as specified by GIGATMS. Ensure that the product is appropriately labeled with the necessary FCC information and compliance statements.

FCC

FCC Caution:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

The module must be installed in RFID Multi-ISO Protocol Modules. This transmitter must not be co-located or operated in conjunction with any other antenna or transmitter.
Information on Test Modes and Additional Testing Requirements:
Please check the installation manual first. Please contact GIGATMS (**www.gigatms.com.tw**) if you have any questions when conducting the RF certification test on the host. We (GIGATMS) are ready to present the control manual and others for the RF certification test.
Additional Testing, Part 15 Subpart B Disclaimer:
Follow any additional testing procedures and requirements specified by GIGATMS to ensure compliance with FCC Part 15 Subpart B. Include a disclaimer stating that the product complies with the specified requirements.

Note EMI Considerations:
Note that a host manufacturer is recommended to use KDB 996369 D04 Module Integration Guide recommending as “best practice” RF design engineering testing and evaluation in case non-linear interactions generate additional non-compliant limits due to module placement to host components or properties. For standalone mode, reference the guidance in D04 Module Integration Guide, and for simultaneous mode7; see D02 Module Q&A Question 12, which permits the host manufacturer to confirm compliance.
How to Make Changes:
If any changes or modifications need to be made to the integrated product, such as adding or adjusting the antennas or cable, follow the guidelines provided by GIGATMS. Ensure that the changes comply with the original antenna model specifications. For further assistance or to submit reports/documentation, please contact GIGATMS using the following information:

- **Contact:** GIGATMS
- **Email:** [Insert GIGATMS contact email]
- **Applicant:** GIGATMS
- **Address:** [Insert GIGATMS address]
- **Phone:** [Insert GIGATMS contact number]

Note: The integration instructions should be tailored to your specific product and compliance requirements as guided by GIGATMS.

LIMITED WARRANTY

Giga-Tms warrants that the products sold pursuant to this Agreement will perform in accordance with Giga-Tms’s published specifications. This warranty shall be provided only for a period of one year from the date of the shipment of the product from Giga-Tms (the “Warranty Period”). This warranty shall apply only to the “Buyer” (the original purchaser, unless that entity resells the product as authorized by Giga-Tms, in which event this warranty shall apply only to the first re-purchaser). During the Warranty Period, should this product fail to conform to Giga-Tms’s specifications, Giga-Tms will, at its option, repair or replace this product at no additional charge except as set forth below. Repair parts and replacement products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become the property of Giga-Tms. This limited warranty does not include service to repair damage to the product resulting from accident, disaster, unreasonable use, misuse, abuse, negligence, or modification of the product not authorized by Giga-Tms. Giga-Tms reserves the right to examine the alleged defective goods to determine whether the warranty is applicable. Without limiting the generality of the foregoing, Giga-Tms specifically disclaims any liability or warranty for goods resold in other than Giga-Tms’s original packages, and for goods modified, altered, or treated without authorization by Giga-Tms. Service may be obtained by delivering the product during the warranty period to Giga-Tms (8F No. 31 Lane 169, Kang Ning Street, Hsi Chih Dist New Taipei City, Taiwan). If this product is delivered by mail or by an equivalent shipping carrier, the customer agrees to insure the product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location, and to use the original shipping container or equivalent. Giga-Tms will return the product, prepaid, via a three (3) day shipping service. A Return Material Authorization (“RMA”) number must accompany all returns. Buyers may obtain an RMA number by contacting **sales@gigatms.com.tw** EACH BUYER UNDERSTANDS THAT THIS GIGA-TMS PRODUCT IS OFFERED AS IS. GIGA-TMS MAKES NO OTHER WARRANTY, EXPRESS OR IMPLIED, AND GIGA-TMS DISCLAIMS ANY WARRANTY OF ANY OTHER KIND, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. IF THIS PRODUCT DOES NOT CONFORM TO GIGA-TMS’S SPECIFICATIONS, THE SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT AS PROVIDED ABOVE. GIGA-TMS’S LIABILITY, IF ANY, SHALL IN NO EVENT EXCEED THE TOTAL AMOUNT PAID TO GIGA-TMS UNDER THIS AGREEMENT. IN NO EVENT WILL GIGATMS BE LIABLE TO THE BUYER FOR ANY DAMAGES, INCLUDING ANY LOST PROFITS, LOST SAVINGS, OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF, OR INABILITY TO USE, SUCH PRODUCT, EVEN IF GIGA-TMS HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR FOR ANY CLAIM BY ANY OTHER PARTY?

LIMITATION ON LIABILITY

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Federal Communication Commission Interference Statement This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

FCC Caution:
Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

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

The module must be installed in RFID Multi-ISO Protocol Modules.
IMPORTANT NOTE:
In the event that these conditions can not be met (for example certain laptop configurations or co-location with another transmitter), then the FCC authorization is no longer considered valid and the FCC ID can not be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate FCC authorization.
End Product Labeling
The final end product must be labeled in a visible area with the following: "Contains FCC ID: WXAQD60 Manual Information to the End User The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module in the user's manual of the end product which integrates this module.
We welcome OEM inquiries Custom device programming available is.

CONTACT

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- **e-mail:** sales@gigatms.com.tw.
- http://www.gigatms.com.tw.

Documents / Resources

	PROMAG QD60 Dual Frequency RFID Multi-ISO Protocol Modules [pdf] User Manual QD60 Dual Frequency RFID Multi-ISO Protocol Modules, QD60, Dual Frequency RFID Multi-ISO Protocol Modules, RFID Multi-ISO Protocol Modules, Multi-ISO Protocol Modules, Protocol Modules, Modules

References

- Gigatms