EPT038882 QMM - User Manual

Electronic Technical Report

Revision: 5.0

Document Number: Doc-0011804

Document Type: Electronics Requirement Specification Based on Template: Doc-0002432 Rev 3 **DO NOT EDIT THIS BOX**

The Work In Progress watermark must be switched on while this document is being edited.

This document contains 11 pages.

The master of this document is held in the Document Management System. Paper or electronic copies of this document are uncontrolled. Always refer to the Document Management System for the correct Revision. If document is watermarked with Work In Progress, then its contents shall not be trusted.

Contents

1. Introduction

This document is a user manual for the Quality Management Module (QMM) which is a dual radio frequency identification (RF ID) tag reader. This system can be used in any new design of Domino printer. The system has been implemented to ensure the correct consumables are used within the Domino printer.

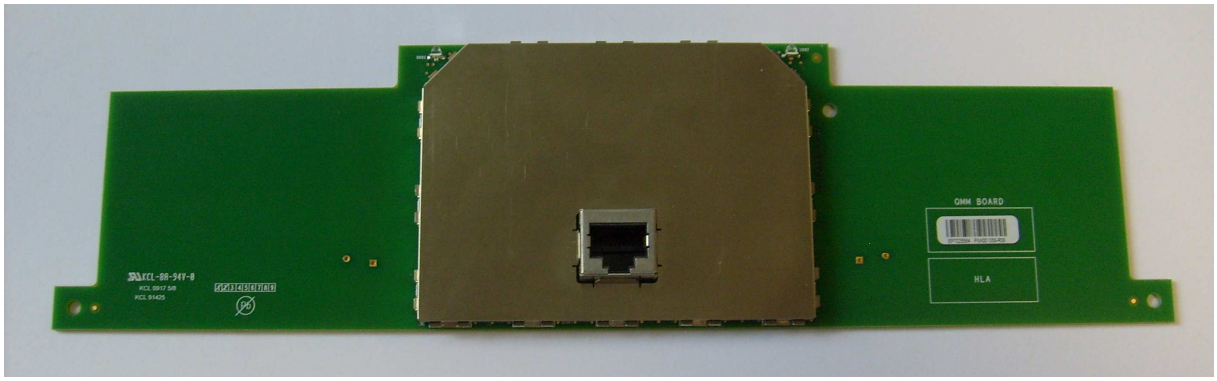

Figure 1 – EPT038882 QMM Sub System Module

2. System Overview

The RF ID sub system, known as the QMM, installed into Domino printers provides communication to RF ID tags fitted to the ink cartridges. These are replaceable consumable items within the printer.

The QMM has been designed specifically for new Domino printers and cannot be retro fitted to older Domino products and is not suitable for installation in third party products.

The sub system shall be housed in an enclosure sealed to IP54 against the ingress of dust and fluids and have been manufactured in materials which are tolerant to chemical attack from Methyl Ethyl Ketone (MEK) and acetone solvent based inks.

The system is powered and communicates with the printer via a single screened RJ45 cable. The QMM connector pin-out is unique to this unit which prevents third party devices being connected.

The QMM sub-system has two integrated bi-colour light emitting diodes (LEDs) which indicate the status of the ink cartridge tags.

3. Installation

The QMM sub system is installed in four steps:

- Insert sub system into housing and install the seal and rear cover.
- Insert RJ45 cable assembly through housing aperture and into sub system and seal.
- Mount Sub assembly in printer.
- Connect RJ45 to appropriate labelled QMM connector in printer.

The printer can be powered in the normal way. See the appropriate printer operation manual for more information.

The 24V power source supplied to the QMM from the printer must be limited to 625mA under all operating conditions, to comply with the safety standards IEC/EN 60950 and IEC/EN62368.

The power source must be limited to 15W, under single fault conditions, in order to meet the requirements of a PS1 circuit and comply with IEC/EN 62368-1 clause 6.2.2.4.

Similarly, the power source limitation of 15VA is required to comply with the requirements for parts not requiring a fire enclosure and comply with IEC/EN 60950-1 clause 4.7.2.

4. Operation

The QMM is transparent in operation to the user except when a new ink cartridge is fitted. When a new ink cartridge is fitted to the printer, the following procedure should be adopted:

- Remove the old ink cartridge, if already fitted. The LED associated with that container will turn amber when an ink cartridge is not fitted.
- Offer the replacement ink cartridge to the printer without inserting the ink cartridge to allow the RF ID tag to be read. Failing to observe this may result in contamination of the ink system and subsequent printer shutdown.
- The LED for the associated container will flash green whilst the tag data is being read.
- When the LED turns green, the ink cartridge has been deemed acceptable and the ink cartridge can be installed into the printer
- If the ink type is incorrect or the tag is indicating an empty or obsolete ink cartridge, the LED will turn red. A new cartridge should be inserted.
- If the tag is faulty such that the QMM system cannot read the data, the LED will remain amber. A new cartridge should be inserted.
- Follow any on screen instructions given by the printer.

In normal use, the ink level information is displayed in graphical form on the home page of the user interface. Tag data for each ink container is available to a service engineer through the user interface at the following location:

SETTINGS > ADVANCED > INK DETAILS

5. Compliance Statements

USA & Canada

The QMM module has been tested to FCC 15.209 radiated limits for a class B digital device. The QMM will be installed within the printer which is tested as a Class A digital device.

This device complies with Part 15 of the FCC Rules and Industry Canada licence exempt RSS standard(s). Operation is subject to the following two conditions:

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

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

1. l'appareil ne doit pas produire de brouillage, et
2. l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Class B device:
NOTE: 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 or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into 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.

The equipment has been tested and found to comply with the Specific Absorption Rate (SAR) and Radio Frequency (RF) field strength limits as detailed in RSS-102.

In accordance with RSP-100 section 3.2 & FCC CFR47 §15.212, the printer (host product) label shall contain the following statement:

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.
Contains FCC ID: 2AHFK-EPT038882
Contains IC: 21200-EPT038882

Below is an example of the printer (host product) label containing the statement above.

Figure 2 – Example Host Label for a Domino Printers

Republic of Korea

B급 기기 (가정용 정보통신기기)

이 기기는 가정용으로 전자파적합등록을 한 기기로서
주거지역에서는 물론 모든지역에서 사용할 수 있습니다.

Class B: EMC registration is done on this equipment mainly for household use (Class B) and also can be used in all areas.

6. Technical Specification

Mechanical Dimensions QMM sub system typical dimensions:	 H 15 mm, W 256 mm, D 66 mm
Material Antenna elements:	 Plated copper on FR4 PCB
Electrical Connection: Voltage: Typical current: Application software:	 Screened RJ45 24V D.C. via RJ45 70 mA Required for Operation
RF ID Operating Frequency: Tag type: Max antenna power (ERP):	 13.56 MHz +/- 7kHz RF ID type ISO14443B 1.3 uW
Temperature Rating Operating Temperature Range:	 0 to 70 ˚C
Power Supply to QMM Maximum fused power:	 15W (to comply with safety standards IEC/EN 60950-1 clause 4.7.2 and IEC/EN 62368-1 clause 6.2.2.4)

7. Glossary

Term	Definition
ERP	Effective Radiated Power
FCC	Federal Communications Commission
IC	Industry Canada
ISO	International Organisation for Standardisation.
LED	Light Emitting Diode
MEK	Methyl Ethyl Ketone
PCB	Printed Circuit Board
QMM	Quality Management Module
RF	Radio Frequency
RF ID	Radio Frequency Identification
SAR	Specific Absorption Rate

END OF DOCUMENT