Operation Manual

0564A02A-003 /EQT Medusa M1415 RS422/EPA

REVISION 1.0, 2008-02-27

The EQT-Medusa -M1415-RS422/EPA is a RFID Read-/Write-Device (short: reader) which is compatible to all Mifare cards. The reader also supports ISO14443A/B and ISO15693 and all cards compliant to these standards. It provides a serial interface RS422 to output or exchange data with a host computer (typically an Equitrac Page Counter Unit, a printer or a copy machine) and a 13.56MHz inductive interface to supply power to and exchange data with the Mifare/ISO compliant card (or other available form-factors such as tags, key-fobs). The host computer can control a bi-colour LED and a beeper to interface with the user.

Mounting and Connection

The reader generates a magnetic field with the frequency of 13.56MHz which is influenced by any electrically conductive material in close proximity to the device. When mounting the unit, a distance to any such material of minimum 10 cm is required to ensure that there will be no significant degradation of the performance in terms of read range and reliability. Mounting the unit directly to metal would result in a severe reduction of read range down to zero functionality. Care should be taken when testing the device after mounting at a problematic environment: Read ranges and performance vary from card to card and very much from card to tag or key-fob.

When mounting multiple readers, the distance between readers should be minimum 0.5 m in order to avoid degradation of performance due to interference.

To connect the device to an Equitrac PageCounter, printer or copy machine, please make sure the host system provides an 14-pin Mini-DIN socket intended for connection of the reader.

Operation

Whenever the device is connected to a proper power supply, it will switch on the internal antenna and periodically scan for a card. Once a card has been detected, the card number is read, the data converted and sent to the host system through the serial interface. To enable the device to read cards, tags and key-fobs successfully, they should be placed centred above the reader.

Technical Data

DC Electrical Characteristics

Symbol	Parameter	Condition	Min	Typ	Max	Units
Vdd	Supply Voltage		4.75	5	5.5	VDC
Idd	Supply current				400	mA
Idd1	Peak Supply current	Inrush			450	mA

Additional requirements for the supply voltage: Vripple = 50mVpp max.

RF Characteristics

Operating frequency: 13.56 MHz
Data transmission modulation reader to card: AM
Data transmission modulation card to reader: AM/load modulation

Pinout RS422-Interface MDR 14-Pole connector plug and Signal Descriptions

Pin	Name	Type	Description
1	GND	Power	Signal and Power Ground
2	-TX RS422	Output	RS422-data from reader
3	+TX RS422	Output	RS422-data from reader
4	-	-	Not connected
5	-RX RS422	Input	RS422-data to reader
6	+RX RS422	Input	RS422-data to reader
7	-	-	Not connected
8	+5V Power	Power	Signal and Power Ground
9	-	-	Not connected
10	+5V Return	Power	Power Ground
11	-	-	Not connected
12		I/O	Connected
13	-	-	Not connected
14	-	-	Not connected

Temperature

Operating temperature range: 0…45°C
Storage temperature range: -20…+60°C
Thermal shock: 30°C/min maximum dT/dt

Humidity

Operating: 20% to 80% relative humidity; non condensing
Non-operating: 10% to 90% relative humidity; non condensing

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

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.

Canada:
This Class B digital apparatus complies with Canadian ICES-003.Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada