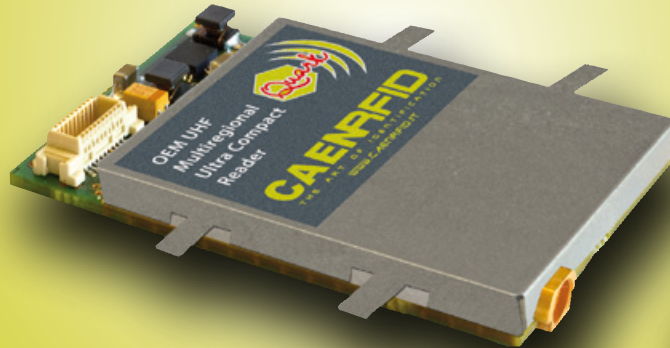


# Quark R1230C

**OEM UHF Multiregional  
Ultra Compact Reader**

The world's  
**smallest**  
OEM reader



## Features

- Multi-Regional Support
  - ETSI EN 302 208
  - FCC part 15
- EPC C1 G2, ISO 18000-6C Compliant
- Ultra Compact Size
- External Antenna Connector
- SW programmable output power up to 200mW (23dBm) conducted
- Low Power Consumption

## Applications

- Handheld Devices
- Multiregional Label Printers and Applicators
- Point of Sales Devices
- Voice Operated Gloves

## General Info

The **Quark** (Model R1230C), the new OEM reader of the **easy2read**® Family, is an UHF multiregional ultra compact reader for low-power, high performances UHF RFID applications.

With programmable output power in 15 steps from 9dBm to 23dBm, the reader can detect tags at more than 2 mt of distance\*.

Due to its low power consumption, the module is specifically designed to be easily integrated in battery powered devices as well as devices powered by a standard USB port.

The radio frequency core of the module permits to achieve fast reading and to be used in dense reader and dense tag environments for top-class rated performances.

The compactness of the device and the board-to-board connector allow to embed the R1230C inside the new small form factor industrial handhelds, smartphone accessories, small USB dongles and other compact form factor devices.

The R1230C complies with and can operate in both European and US regulatory environments and due to its multiregional capabilities, it's ideal for integration in devices requiring compliance to different geographical regions.

\* depending on antenna and tag dimensions

## Technical Specifications Table

<b>Frequency</b>	902÷928 MHz (FCC part 15) 865.600÷867.600 (ETSI EN 302 208)
<b>Output Power</b>	Programmable in 15 levels (1dB step) from 9dBm to 23dBm ( from 8mW to 200mW) conducted
<b>Antenna Connectors</b>	MMCX P.N. 82MMCX-S50-0-2/111 (Huber Suhner)
<b>Frequency Tolerance</b>	±10 ppm over the entire temperature range
<b>Number of Channels</b>	4 channels (compliant to ETSI EN 302 208 v1.2.1) 50 hopping channels (compliant to FCC part 15.247) <sup>1</sup>
<b>Standard compliance</b>	EPC C1 G2/ISO 18000-6C Other by FW upgrade
<b>Digital I/O</b>	4 I/O lines (3.3V level; Iout=5mA max)
<b>UART Serial Port</b>	Data rate: up to 115 kbit/s Databits: 8 Stopbits: 1 Parity: none Flow control: none 3.3 V out
<b>Dimensions</b>	(W)25 x (L)40 x (H)6 mm <sup>3</sup> (1.0 x 1.6 x 0.2 inch <sup>3</sup> )
<b>Supply Voltage Range</b>	2.5V ÷ 5.5V
<b>Power Consumption</b>	- 1.6W @ RF out = 23dBm - 1.3W @ RF out = 17dBm - 0.5W in idle mode - 5mW in standby mode (TBC)
<b>Operating Temperature</b>	-10 °C to +55 °C
<b>Weight</b>	8g

<sup>1</sup> All subsets of FCC band are supported

## Ordering Option

Code	Description
WR1230CXAAAA	R1230C - Quark- Low-Power OEM UHF Compact RFID Reader with USB
WR1230ADAT01	R1230ADAT - Quark Adapter Board

### Accessories

WANTENNAX004	Linear polarized 3db gain 870 MHz PIFA antenna
WANTENNAX008	Linear polarized antenna for handheld units 865 - 870 MHz
WANTENNAX009	Linear polarized antenna for printers 865 - 870 MHz
WANTENNAX010	Linear polarized 3db gain 915 MHz PIFA antenna
WANTENNAX011	Linear polarized antenna for handheld units 902 - 928 MHz
WANTENNAX012	Linear polarized antenna for printers 902 - 928 MHz



- OEM Readers
- Fixed Readers
- Desktop Readers

easy2read®

## easy2read® Family

The EASY2READ® family constitutes a complete and reliable product line of readers for any Auto-ID need. A reading range from a few centimetres up to 7-8 metres distance makes the EASY2READ® family suitable for applications such as access control, UHF gates, desktop reading or OEM modules for integration into handheld or printer devices.

## Electrical Interfaces

**Antenna Port Connector:** MMCX jack (P.N. 82MMCX-S50-0-2/111 HUBER SUHNER)

**Supply and Communication Connector:** Molex P.N.53748-0208<sup>2</sup>

JTAG pins are for internal debug only and shall not be connected by the user

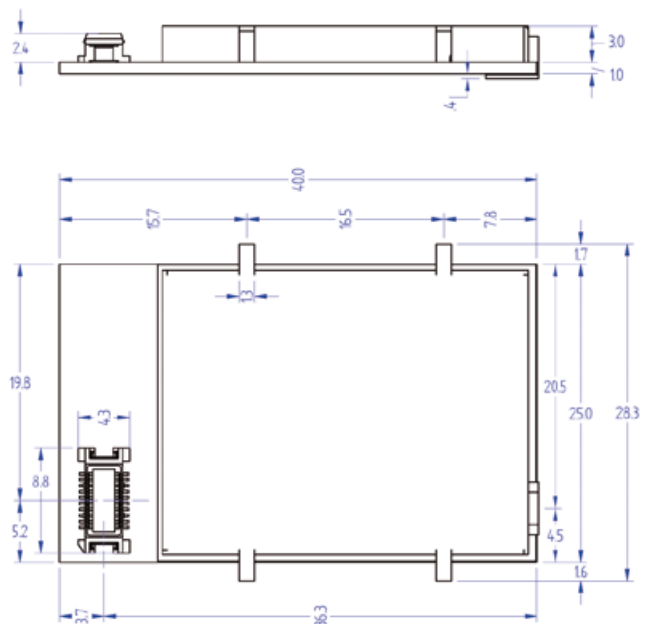
### Supply and I/O connector pinout table

Pin#	Signal	Description
1	GND	Ground
2	TCK	TCK JTAG signal (debug purpose only) <sup>3</sup>
3	GND	Ground
4	/RST	Reset (active low)
5	TXD	UART TX to host
6	TMS	TMS JTAG signal (debug purpose only)
7	RXD	UART RX from host
8	TDI	TDI JTAG signal
9	5V_OUT	Auxiliary 5Vdc output voltage
10	TDO	TDO JTAG signal (debug purpose only)
11	BSL_SEL	Bootstrap loader selection
12	TST	TST JTAG signal (debug purpose only)
13	VDD_M	Auxiliary 3.3Vdc output voltage
14	GPIO0	General Purpose IO #0
15	VDD_M	Auxiliary 3.3Vdc output voltage
16	GPIO1	General Purpose IO #1
17	VIN	Input supply voltage
18	GPIO2	General Purpose IO #2
19	VIN	Input supply voltage
20	GPIO3	General Purpose IO #3

<sup>2</sup> Mates with Molex 52991-0208 (to be used on the host board).

<sup>3</sup> This pin operates also as BSL entry signal and shall be connected in case that the user wants to implement the HW recovery procedure.

## Mechanical Specifications



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Printed in Mars 2010