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Radio Controller Board

RCB128RFA1 V6.3.1

Datasheet

- The Radio Controller Board RCB128RFA1 V6.3.1 is an affordable high-performance radio module based on the AVR SoC ATmega128RFA1 with integrated 2.4 GHz transceiver. It can be used for wireless solutions in accordance with the standard IEEE 802.15.4 (e.g. ZigBee and 6LoWPAN applications).
- The board obtains a transmitting power of 2.5 dBm ERP, a receiving sensitivity of -104 dBm and operates with external antenna. A 60-pin interface offers flexible operation with various periphery boards and allows full access to all components of the ATmega128RFA1. All relevant board information is stored on an external on-board EEPROM.
- Power is supplied either by two AAA batteries or the 60-pin interface; the module operates in the range from 1.8 to 3.6 VDC. The power consumption is approx. 18 mA in transmitting and receiving mode and less than 2 µA in standby. The module features a 32 kHz low power timer.



Technical data

Dimensions W x D	52.4 mm x 45.4 mm
Control and display elements	1 switch battery On/Off 1 button (freely programmable) 3 LEDs (freely programmable) 1 LED RST-OUT
Power supply	2 AAA batteries (1.8 ... 3.6V)
Power consumption	Active: 18 mA Tx/Rx Power-down: <2 µA
Connectors	2 x 30 pin I/O connector
Antenna	Separately available Connectable via SMA socket
Antenna gain	Appropriate to used antenna
Antenna diversity	None
Range	Appropriate to used antenna
Frequency range	2.4 GHz
Transmitting power	2.5 dBm ERP
Receiver sensitivity	-104 dBm
Communication standard	IEEE 802.15.4
Data rate	250 kbit/sec
Microcontroller	Atmel ATmega128RFA1
Transceiver	Integrated
Interfaces	I2C, UART, ADC, GPIO, ISP*, JTAG
Certification	CE, ETSI, FCC

Technical Data

*) No access via Sensor Terminal Board
Connections at Breakout Board see overleaf

Pin configuration

EXT0				EXT1			
1:	PG0	2:	PG1	1:	PB1 / SCK	2:	GND
3:	#RESET	4:	Vcc	3:	PE7	4:	PE6
5:	GND	6:	nc	5:	TST	6:	RSTON
7:	CLKI	8:	GND	7:	PE3	8:	PE2
9:	PD0 / SCL	10:	PD1 / SDA	9:	PE1 / TxD0	10:	PE0 / RxD0
11:	PD2 / RxD1	12:	PD3 / TxD1	11:	GND	12:	AREF
13:	PD4	14:	PD5	13:	PF0 / ADC0	14:	PF1 / ADC1
15:	PD6	16:	PD7	15:	PF2 / ADC2	16:	PF3 / ADC3
17:	PE4 / #WR	18:	PE5 / #RD	17:	PF4 / TCK	18:	PF5 / TMS
19:	GND	20:	GND	19:	PF6 / TDO	20:	PF7 / TDI
21:	GND	22:	GND	21:	Vcc	22:	GND
23:	GND	24:	GND	23:	PB0	24:	PB1 / SCK
25:	PD4	26:	PD5	25:	PB2 / MOSI	26:	PB3 / MISO
27:	PD6	28:	PD7	27:	PB4	28:	PB5
29:	GND	30:	PG2 / ALE	29:	PB6	30:	PB7

Connections

*) ISP connection option at Breakout Board

SCK J3 Pin2 MOSI J3 Pin3 MISO J3 Pin4
Vcc J3 Pin9 GND J3 Pin10 #RESET J2 Pin6

Scope of delivery

RCB128RFA1 V6.3.1

Order No.

BN-027030

Accessories (optional)

Antenna 2.4GHz rigid

BN-022499

Development boards

Sensor Terminal Board (RCB)

BN-026533

RCB Breakout Board

BN-025310

RCB Breakout Board light

BN-025589

RCB Breakout Board RS232 cable

BN-026790

Development kits

Sensor Terminal Board – starter kit 2.4 GHz

BN-024123

Board versions

RCB230 – 2.4 GHz, antenna on-board

BN-025227

RCB230SMA – 2.4 GHz, SMA connector

BN-025228

RCB231 – 2.4 GHz, antenna on-board

BN-025230

RCB231ED – 2.4 GHz, antenna on-board, diversity

BN-025231

RCB231LPA – 2.4 GHz, SMA connector, RF amplifier

BN-026833

RCB212SMA – 780/868/915 MHz, SMA connector

BN-025232

Order online: <http://www.dresden-elektronik.de>

Order Information

Variants

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