dresden elektronik

Erfolg lässt sich steuern

Hardware Selection Guide
for Wireless Networks

March 2011

Agenda

Overview

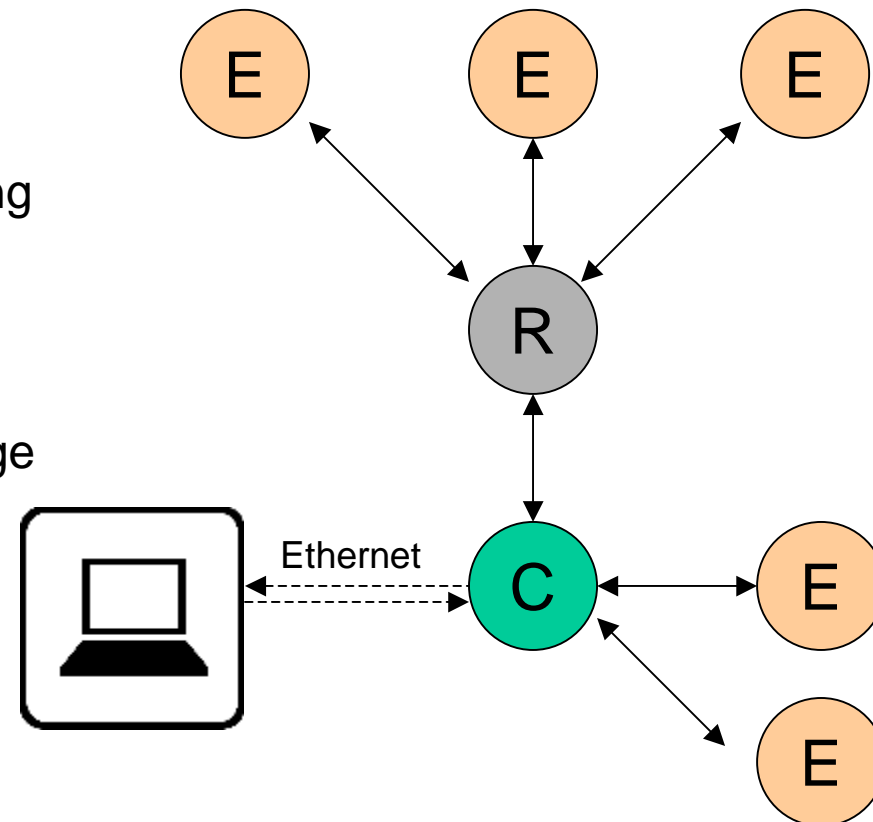Dresden elektronik offers different radio modules and platforms for wireless applications.

End Device:

§ Battery powered node

§ Monitoring and controlling

§ Sensor systems

Router Device:

§ to increase network range

Coordinator Device:

§ DC or USB powered

§ Network management

§ Gateway to WWW

Overview

Dresden elektronik proposes following hardware combinations:

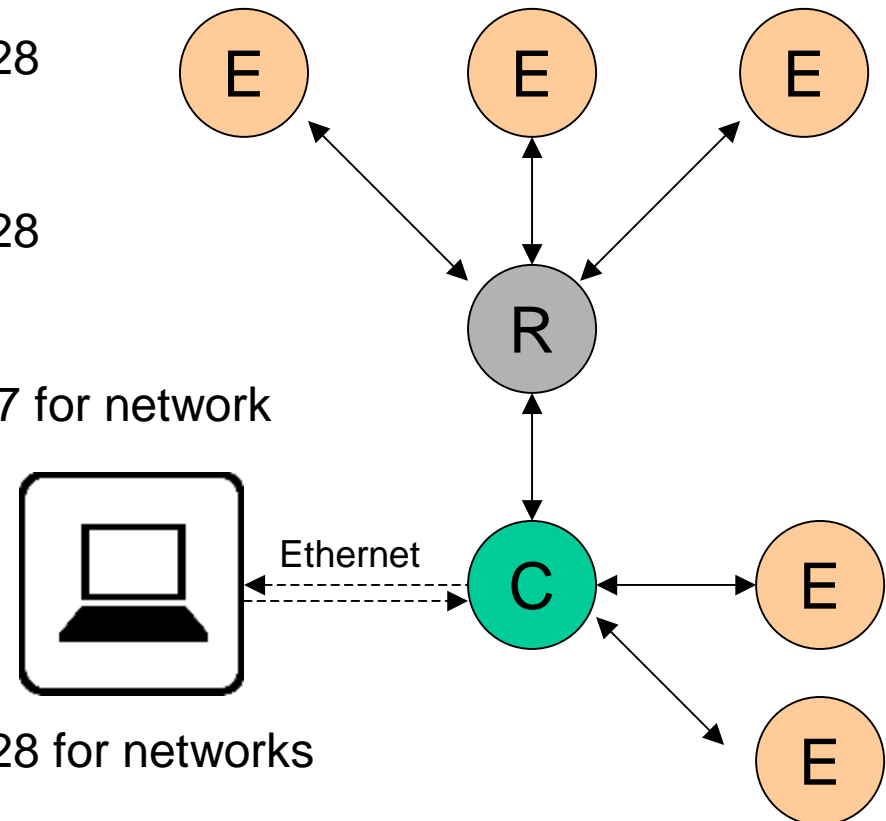End Device:

§ deRFnode with deRFmega128

Router Device:

§ deRFnode with deRFmega128

Coordinator Device:

§ deRFgateway with deRFarm7 for network access through Ethernet interface à 6LoWPAN

§ deRFnode with deRFarm7 if no Ethernet is required

§ deRFnode with deRFmega128 for networks with only a few nodes

E   E   E

R

Ethernet

C   E

E

Radio modules: deRFmega128

The deRFmega128 radio modules are available in 4 variants:

- § 22A00: pluggable with chip antenna [2.4GHz]
- § 22A02: pluggable with coaxial connector UFL [2.4GHz]
- § 22C00: solderable with chip antenna [2.4GHz]
- § 22C02: solderable with coaxial connector UFL [2.4GHz]

22C02

22C00

22A02

22A00
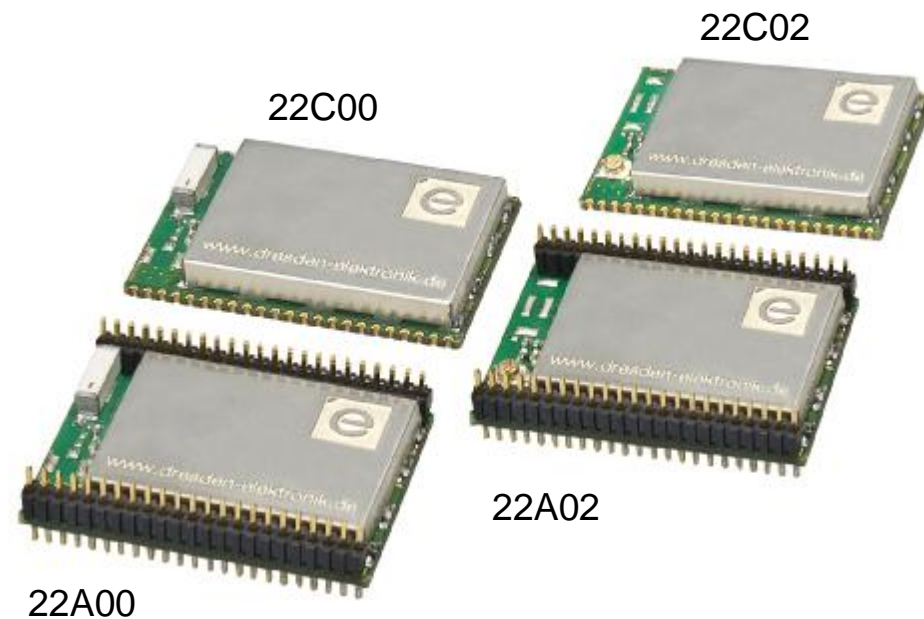
Radio modules: deRFarm7

The deRFarm7 radio modules will be available in 8 variants:

§ 25A00: pluggable with chip antenna [2.4GHz] *²

§ 25A02: pluggable with coaxial connector UFL [2.4GHz] *²

§ 25C00: solderable with chip antenna [2.4GHz] *²

§ 25C02: solderable with coaxial connector UFL [2.4GHz] *²

§ 15A00: pluggable with chip antenna [Sub-GHz] *

§ 15A02: pluggable with coaxial connector UFL [Sub-GHz] *²

§ 15C00: solderable with chip antenna [Sub-GHz] *

§ 15C02: solderable with coaxial connector UFL [Sub-GHz] *²

* in development

*² available soon

Radio modules: deRFusb

New USB radio sticks with M3-Cortex microcontroller (ATSAM3S4BA).

The deRFusb USB radio sticks are available in 2 variants:

§ 13E00: chip antenna [Sub-GHz]

§ 23E00: chip antenna [2.4GHz]

§ Suitable as coordinator / Sniffer / direct application

§ Optional with JTAG for direct programming

§ Conform ETSI, certified for FCC and IC

§ Perfect gateway between 802.15.4 and wired data transfer

available soon

Radio modules: Naming

deRF	x	-	x	x	x	x	x	(x)	
	mega128		ATmega128RFA1						
	arm7		SAM7X512						
	usb		USB stick based on SAM3S4BA						
			1	868 / 915 MHz					
			2	2.45 GHz					
				2	128k Flash				
				3	256k Flash				
				5	512k Flash				
					A	Through Hole Technology THT			
					C	Surface Mount Technology SMT			
					E	USB-Dongle			
						0	0	Chip antenna	
						0	2	Coaxial connector UFL	
						0	6	iNAND Flash 2GByte + chip ant.	
								( )	Revision 0 <blank>
								(1)	Revision 1
Note: Not all combinations are possible!								(2)	Revision 2

Development Boards: deRFnode / deRFgateway

Dresden elektronik offers development boards that are usable for development, start-up and also end-user applications.

There are two boards available:

§ deRFnode

§ deRFgateway

Main features:

§ Compact size with or without case

§ Temperature, light and acceleration sensor and 4Mbit flash

§ Power supply: battery, USB, DC

§ USB, UART, JTAG and user interface available

§ Ethernet only available for deRFgateway and deRFarm7

available soon

deRFnode	-	x	x	x	x	x	-	x	x	x	x	x
deRFgateway	-	x	x	x	x	x	-	x	x	x	x	x

	1	Native USB			
	2	USB over FTDI			
		T	Through Hole Technology THT		
		S	Surface Mount Technology SMT		
			A	AT91SAM7X512	
			M	ATMEGA128RFA1	
			N	None (no delivered radio module)	
				C	Case
				P	Plain (no case)
				E	Case with external antenna
					2	Revision 2

Note: Not all combinations are possible!

See next page

Development Boards : Naming

deRFnode	-	x	x	x	x	x	-	x	x	x	x	x
deRFgateway	-	x	x	x	x	x	-	x	x	x	x	x
								2	2	C	0	0
								2	2	C	0	2
								1	5	C	0	0
								1	5	C	0	2
								2	5	C	0	0
See naming of radio modules								2	5	C	0	2

Development Boards: Selection Guide/deRFnode

The deRFnode platform for pluggable radio modules will be available in following combinations:

#1	deRFnode	-	1	T	N	C	2	-	0	0	N	0	0
#2	deRFnode	-	1	T	N	P	2	-	0	0	N	0	0
#3	deRFnode	-	2	T	N	C	2	-	0	0	N	0	0
#4	deRFnode	-	2	T	N	P	2	-	0	0	N	0	0

#1 and #2 are designed for pluggable deRFarm7 radio modules.

#2 and #3 are designed for pluggable deRFmega128 radio modules.

Other combinations will follow in the near future.

Development Boards: Selection Guide/deRFnode

The deRFnode platform is designed for end-device applications. The following combinations will be available for solderable radio modules.

#1	deRFnode	-	1	S	A	C	2	-	1	5	C	0	2
#2	deRFnode	-	1	S	A	P	2	-	1	5	C	0	2
#3	deRFnode	-	2	S	M	C	2	-	2	2	C	0	0
#4	deRFnode	-	2	S	M	P	2	-	2	2	C	0	0
#5	deRFnode	-	2	S	M	C	2	-	2	2	C	0	2
#6	deRFnode	-	2	S	M	P	2	-	2	2	C	0	2

#1 and #2 are designed for <u>solderable</u> deRFarm7 radio module with coaxial connector UFL.

#3 and #4 are designed for <u>solderable</u> deRFmega128 radio module with chip antenna.

#5 and #6 are designed for <u>solderable</u> deRFmega128 radio module with coaxial connector UFL.

Other combinations will follow in the near future.

The deRFgateway for pluggable radio modules will be available in following combinations:

#1	deRFgateway	-	1	T	N	C	2	-	0	0	N	0	0
#2	deRFgateway	-	1	T	N	P	2	-	0	0	N	0	0

#1 and #2 are designed for <u>pluggable</u> deRFarm7 radio modules.

Other combinations will follow in the near future.

Development Boards: Selection Guide/deRFgateway

The deRFgateway is designed for coordinator applications. The following combinations will be available for solderable radio modules.

#1	deRFgateway	-	1	S	A	C	2	-	1	5	C	0	2
#2	deRFgateway	-	1	S	A	P	2	-	1	5	C	0	2

#1 and #2 are designed for <u>solderable</u> deRFarm7 radio module with coaxial connector UFL.

Other combinations will follow in the near future.

Development Boards: Hardware Combination

This matrix shows possible combinations of available development boards and radio modules.

		deRFmega128				deRFarm7							
		22A00	22A02	22C00	22C02	15A00	15A02	15C00	15C02	25A00	25A02	25C00	25C02
#1	deRFnode-1Txx2-xxxxx	—	—	nc	nc	●	●	nc	nc	●	●	nc	nc
#2	deRFnode-2Txx2-xxxxx	●	●	nc	nc	●	●	nc	nc	●	●	nc	nc
#3	deRFgateway-1Txx2-xxxxx	—	—	nc	nc	●	●	nc	nc	●	●	nc	nc
#4	deRFnode-1Sxx2-xxxxx	nc	nc	na	na	nc	nc	●	●	nc	nc	●	●
#5	deRFnode-2Sxx2-xxxxx	nc	nc	●	●	nc	nc	na	na	nc	nc	na	na
#6	deRFgateway-1Sxx2-xxxxx	nc	nc	na	na	nc	nc	●	●	nc	nc	●	●

●   full support of all features   nc   not compatible

—   no full support   na   not available

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