

Wireless Modules

Product Overview



Category	Bluetooth 2.0 (2.1) EDR			Dual Mode	BT & ANT	BLE	Bluetooth 3.0 EDR Modem		
Module Picture									
Name	PAN1310/20	PAN1311/21	PAN1315/25	PAN1316/26	PAN1317/27	PAN1720	PAN1455	PAN1555	PAN1560
Type	(no/with antenna)	(no/with antenna)	(no/with antenna)	(no/with antenna)	(no/with antenna)	Bluetooth	3.0 EDR	3.0 EDR	3.0 EDR
Others	2.1 EDR - HCI	2.0 EDR - SPP	2.1 EDR - HCI	2.1 EDR - HCI	2.1 EDR - HCI	Low Energy	SPP, HID, HDP,...	SPP, HID, HDP,...	HDP, 11073
Size [mm]	11.6 x 8.7 x 1.8 15.6 x 8.7 x 2.8	11.6 x 8.7 x 1.8 15.6 x 8.7 x 2.8	9.0 x 6.5 x 1.7 9.0 x 9.5 x 1.7	9.0 x 6.5 x 1.7 9.0 x 9.5 x 1.7	9.0 x 6.5 x 1.7 9.0 x 9.5 x 1.7	15.6 x 8.7 x 1.8	18.8 x 13.5 x 2.5	22.8 x 13.5 x 2.5	25.0 x 15.0 x 2.8
Used ICs	PMB8763	PMB8753/2	CC2560	CC2564	CC2567	CC2540 / (41)	BC6 / STM32F103	BC6 / STM32F103	BC05MM
Status	Mass Production	Mass Production	Mass Production	Engin. Samples	Engin. Samples	Engin. Samples	Mass Production	Mass Production	Engin. Samples
Rx Sensitivity [dBm]	-86 @ BER 10 ⁻³	-86 @ BER 10 ⁻³	-93 @ BER 10 ⁻³	-93 @ BER 10 ⁻³	-93 @ BER 10 ⁻³	-94 @ BER 1%	-86 @ BER 10 ⁻³	-86 @ BER 10 ⁻³	-90 @ BER 10 ⁻³
Tx Power (max.)	+4 dBm	+4 dBm	+10.5 dBm	+10.5 dBm	+10.5 dBm	+3 dBm	+4 dBm	+4 dBm	+6.5 dBm
Operating Temp.	-40 to +85 °C	-40 to +70(85) °C	-20 to +70 °C	-20 to +70 °C	-20 to +70 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
Power Supply	2.7 to 3.6 V	2.7 to 3.6 V	1.8 to 4.8 V	1.8 to 4.8 V	1.8 to 4.8 V	2.0 to 3.6 V	2.7 to 3.6 V	2.7 to 3.6 V	2.5 to 3.6V
Current Consum.	80 µA (sleep) 40 mA (Tx,EDR)	80 µA (sleep) 40 mA (Tx,EDR)	135 µA (sleep) 40 mA (Tx,EDR)	135 µA (sleep) 40 mA (Tx,EDR)	135 µA (sleep) 40 mA (Tx,EDR)	Tx23mA @ -6dBm Rx18mA, Sleep<1µA	<100 µA (sleep) 47 mA (ACL; DH1)	<100 µA (sleep) 47 mA (ACL; DH1)	< 70 µA (sleep) 45 mA (Tx,EDR)
Frequency Range	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Number of GPIOs	>15	>15	2	2	2	19	18	18	18
Interfaces	GPIO, PCM, UART, JTAG	GPIO, UART, JTAG	GPIO, PCM, UART	GPIO, PCM, UART	GPIO, PCM, UART	GPIO, UART (USB)	GPIO, UART, I ² C, SPI, ADC	GPIO, UART, I ² C, SPI, ADC	GPIO, UART, SPI, USB, SPK, MIC
Data Rate (max. air)	3 MBit/s (brutto) 2170 kBit/s (netto)	3 MBit/s (brutto) 190 kBit/s (netto)	3 MBit/s (brutto)	3 MBit/s (brutto)	3 MBit/s (brutto)	1 MBit/s (brutto)	3 MBit/s (brutto) ca. 500 kBit/s (netto)	3 MBit/s (brutto) ca. 500 kBit/s (netto)	3 MBit/s (brutto) 2170 kBit/s (netto)

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Category	ISM (Market for Industrial-Scientific-Medical Solutions)					IEEE 802.15.4 (2.4 GHz)			
Module Picture									
Name	PAN7550	PAN2580	PAN235x	PAN2365	PAN2465	PAN4710/20	PAN4580	PAN4555	PAN4561 H/M/L
Type	wireless M-Bus	wireless M-Bus	<1GHz Transceiver	2.4GHz Transceiver	2.4 GHz Modem	2.4 GHz Modem	AT Command Set	AT Command Set	AT Command Set
Others	AT Command Set	& Mesh Software	Module	Module		TI SW Stack	& Mesh Software	& Mesh Software	& Mesh Software
Size [mm]	32.0 x 13.7 x 2.9	29.0 x 19.0 x 2.9	8.0 x 8.2 x 1.9	8.0 x 8.2 x 1.9	20.0 x 14.4 x 2.3	15.6 x 8.7 x 1.8	29.0 x 19.0 x 2.9	16.4 x 12.2 x 2.2	35.0 x 15.0 x 3.8
Used ICs	MSP430/CC1101	SiLabs SI100x	CC1101	CC2500	nRF24L01+/SL931	CC2530 / (31)	ATmega128RFA1	MC1321x	MC1321x/CC259x
Status	Mass Production	Engin. Samples	Mass Production	Mass Production	Engin. Samples	Engin. Samples	Engin. Samples	Mass Production	Mass Production
Rx Sensitivity [dBm]	-109 @ 1.2kBit/s	-118 @ 2.0kBit/s	-104 @ 2.4kBit/s	-104 @ 2.4kBit/s	-94 @ 250kBit/s	-93 @ 250kBit/s	-100 @ 250kBit/s	-92	+18.5/0/0
Tx Power (max.)	+10 dBm	+13 / +18 dBm	+10 dBm	0 dBm	0 dBm	2 dBm	3.5 dBm	0 dBm	-102/-102/-92dBm
Operating Temp.	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C	-40 to +85 °C
Power Supply	1.8 to 3.6 V	1.8 (2.7) to 3.6 V	1.8 to 3.6 V	1.8 to 3.6 V	1.9 to 3.6 V	2.0 to 3.6 V	1.8 to 3.6 V	2.0 to 3.4 V	2.0 to 3.4 V
Current Consumption	Tx: 30mA@+10dBm Rx: 17mA Sleep Mode: <1µA	Tx: 30/85 mA Rx: 18.5mA Sleep Mode: <1µA	<1µA (sleep) 17mA (Tx, 0dBm)	<1µA (sleep) 21mA (Tx, 0dBm)	Tx: 13.2mA @ 0dBm Rx: 14.3mA Sleep Mode: <1µA	Tx: 39 mA Rx: 29mA Sleep Mode: <1µA	Tx: 18.5 mA @0dBm Rx: 16.5mA Sleep Mode: <1µA	<1µA (off mode) 30 mA (Tx, -4dBm)	<1 / 2 µA (off mode) 30 / 210 mA (Tx, -4 / +20 dBm)
Frequency Range	863 to 928 MHz	863 to 928 MHz	300 to 1000 MHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz
Number of GPIOs	27	18	2 Output	2 Output	9	19	33	19	33
Interfaces	GPIO, UART, SPI, JTAG,	GPIO, UART, SPI, I ² C, ADC	GPO, SPI	GPO, SPI	GPIO, UART, SPI	GPIO, UART (USB)	GPIO, 2 UART, SPI, ADC, 2 wire serial	GPIO, UART, SPI	GPIO, UART, I ² C, BDM
Data Rate (max. air)	500 kBit/s (brutto)	500 kBit/s (brutto)	500 kBit/s (brutto)	500 kBit/s (brutto)	2000 kBit/s (brutto)	250 kBit/s (brutto)	2000 kBit/s (brutto)	250 kBit/s (brutto)	250 kBit/s (brutto)

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