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Wireless M-Bus Modem PAN7580 for 868MHz MBUS

Panasonic Electronic Devices Europe GmbH

WIRELESS MODULES

OUTLINES -ENW59625x3CF

Wireless meter reading requires communication protocolls with little overhead for small amounts of data. The Wireless M-Bus protocol has proven in many field tests to be a quasi standard accross Europe for smart metering.

The PAN7580 module is a low cost 868 MHz Module with implemented Wireless M-Bus according to EN13757-4 (supporting all Wireless M-Bus operation modes T1, T2, S1, S1-m, S2, R2). Using an appropriate microcontroller (MCU) with reference oscillator provides a cost effective solution for long range data links and networks.
This module will comply to CE (868MHz). A pin compatible modem, called PAN4580 for applications other than Wireless M-Bus is also available for 2.4GHz. For evaluation and development a Java-based PC suite can be downloaded from the Panasonic website.

FEATURES

- small size SMD device (29.8mm x 19.0mm x 2.7mm)
- 3 antenna options: Single port 50Ω, ceramic antenna or plug
- Low power modes for increased battery life
- High sensitivity: - 101dBm typ. @ T-mode and -104dBm in S-mode (20% Packet Error Rate)
- +13 dBm @868 MHz max. P_{out}, programmable over 20 dB range
- Low supply voltage (2.7 V to 3.6 V, 3.0 V typ.)
- Operating temperature range -40°C to +85°C
- 192k total Flash with 64k used by WM-Bus Core
- 1 UART with HW Flow Control for control or transparent data
- 19 GPIOs and up to 18 A/D inputs with 10 Bit ADC for fast and easy conversion from analog inputs -such as temperature, pressure and fluid levels- to digital values.

Firmware Options

Steinbeis has developed a wireless M-Bus protocol.
- Support for all Wireless M-Bus modes as specified in EN13757-4:2005 (T1, T2, S1, S1-m, S2, R2)
- Serial command set for ease of integration
- Application layer protocols (EN13757-3, Dutch Smart Meter Requirements, Open Metering Specification)
- New Wireless M-Bus modes according to EN13757-4:2010 (C1, C2, N1, N2) in development

2580-100-101 Rev. B1

CONTACT

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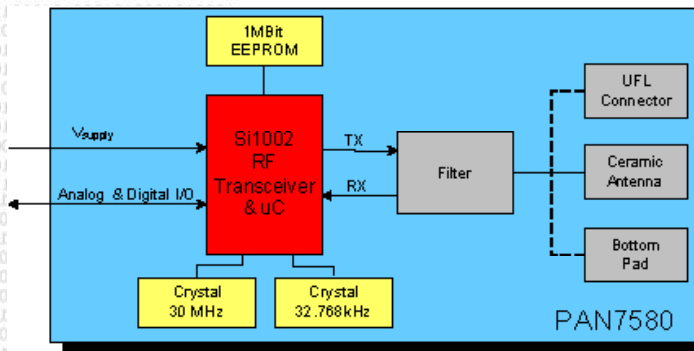Inselkammerstr. 10
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BLOCK DIAGRAM

TECHNICAL CHARACTERISTICS

Parameter	Value (PAN7580)	Condition / Note
Receiver Sensitivity	-101 dBm typ. -104 dBm typ.	@ 20% packet error rate in WM-Bus T-mode @ 20% packet error rate in WM-Bus S-mode
Output Power	-9 to +13 dBm	typical
Power Supply	2.7 V to 3.6 V	single supply, 3.0 V typ.
Data Rate	4.8 / 32.768 / 100 kbps	over the air, according EN13757-4, depending on WM-Bus Mode
Current Consumption receive mode transmit mode sleep mode	24 mA typ. 30 mA @ 13dBm 2µA	@ max output power with internal timer running
Operating Temperature Range	-40°C to +85°C	

Notes:
All parameters are valid for V_{Supply} = 3.0V and T_{amb} = 25°C.

ORDERING CODE

Hardware-Description	PAN Number	Ordering Code
EU version, ceramic antenna, 868 MHz	PAN7580M-A	ENW59625A3CF
EU version, UFL connector, 868 MHz	PAN7580M-U	ENW59625B3CF
EU version, bottom pad, 868 MHz	PAN7580M-BP	ENW59625C3CF