



#### FEATURES

- Very low power, high performance, low IF transceiver
- Fully integrated io-homecontrol compliant protocol covering
  - Layer 1, Layer 2, and time critical elements of Layer 3
  - Media access
  - Master, slave, and beacon modes supported
  - Automatic io-homecontrol channel scan
  - Automatic CRC, preamble, start byte insertion/check
  - UART data encoding as per io-homecontrol
  - Smart preamble detect/packet sniffing
  - Automatic address filtering
  - Low power modes
- Autonomous packet handling without intervention of host microprocessor thus significantly increasing battery life
- 1-way and 2-way communication supported
- Automatic wake-up timer
- 32-bit hardware timer, 16-bit firmware timer (48 bits total)
- Uses either
  - External 32 kHz crystal
  - Internal 32 kHz RC oscillator
- Patented fast settling automatic frequency control (AFC)
- Fully integrated image rejection calibration (patent pending)
- Digital RSSI
- Operating frequencies
  - Channel 1: 868.25 MHz
  - Channel 2: 868.95 MHz
  - Channel 3: 869.85 MHz

#### Very low power consumption

- 12.8 mA in receive mode with AGC active
- 11.9 mA in receive mode with manual AGC, ADC off
- 24.1 mA in transmit mode (10 dBm output)
- 0.75  $\mu$ A in RCO wake mode
- 1.25  $\mu$ A in XTO wake mode (32 kHz oscillator active)
- 38.4  $\mu$ A average current in low power mode

#### Receiver sensitivity (10<sup>-3</sup> BER)

- 108.5 dBm at 38.4 kbps FSK, 20 kHz deviation

#### Output power programmable up to 13.5 dBm

- Automatic PA ramping
- Dual PAs offer Tx antenna diversity

#### Very few external components

- Integrated PLL loop filter
- Integrated Rx/Tx switch
- Integrated battery monitor
- On-chip 8-bit ADC and temperature sensor

#### Efficient and flexible SPI control interface

- 4 lines available for low cost microcontroller interface
- Flexible Tx and Rx data buffers
- Efficient burst mode register access
- 1.8 V to 3.6 V power supply
- 5 mm  $\times$  5 mm, 32-lead LFCSP package

#### APPLICATIONS

- Home automation
- Process and building control

#### FUNCTIONAL BLOCK DIAGRAM

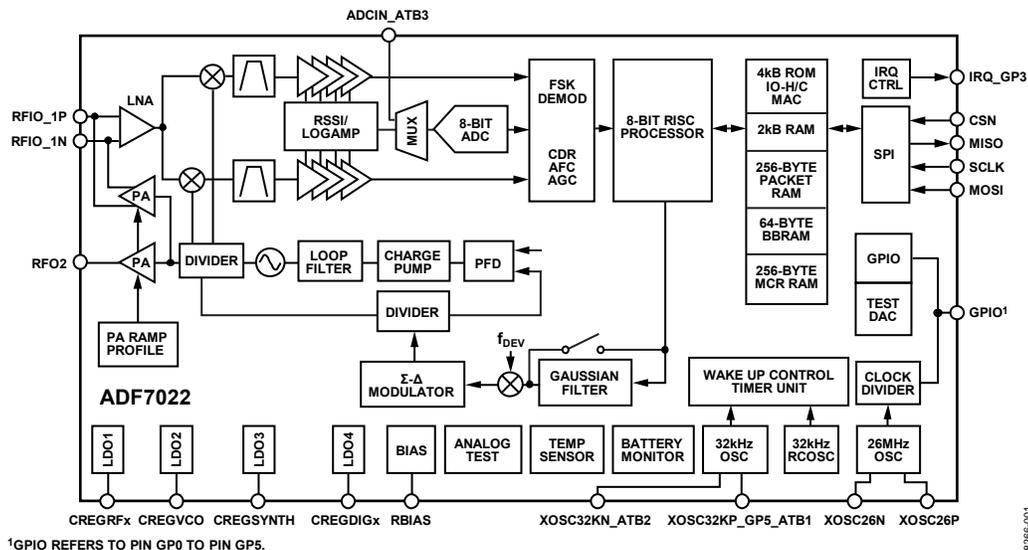


Figure 1.

For more information on the ADF7022, contact a local sales office at Analog Devices, Inc.

#### Rev. SpA

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**ADF7022**

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