

# ADF7030-1

## Ultralow Power, Sub-GHz RF Transceiver



### Fully Integrated Radio Transceiver

The **ADF7030-1** is a fully integrated radio transceiver achieving high performance at very low power. With industry-leading blocking and sensitivity, end products using the ADF7030-1 will be capable of receiving messages in the most challenging industrial RF environments. It is suitable for applications that operate in the ISM, SRD, and licensed frequency bands at 169.4 MHz to 169.6 MHz, 426 MHz to 470 MHz, and 863 MHz to 960 MHz. It provides extensive support for standards-based protocols like IEEE802.15.4g while also providing flexibility to support a wide range of proprietary protocols.



### Features and End Product Impact:

#### Feature:

- ▶ Highly robust RF performance
  - Industry-leading interferer resilience and long-range performance

#### Application Impact:

- ▶ More reliable communication link
  - Improves end-to-end system reliability and overall product reliability
  - Fewer packet retransmissions increase battery life

#### Feature:

- ▶ Ultralow power consumption
  - 10 nA sleep current with memory retention
  - Fast 8-bit scan time—no loss of performance

#### Application Impact:

- ▶ Longer battery life will reduce cost and increase product lifetime

#### Feature:

- ▶ Fast time to market
  - LCD enables out of the box, battery-powered evaluation
  - Radio drivers for ARM® Cortex® micro-controllers for rapid code development
  - Comprehensive validation

#### Application Impact:

- ▶ Reducing development time enables users to rapidly respond to market requirements

## Features and Specifications:

### Sub-1 GHz RF Transceiver

- ▶ RF bands: 169 MHz, 433 MHz, 868 MHz, 915 MHz
- ▶ Data rate 0.1 kbps to 300 kbps

### Protocols: PHY Layer Supports

- ▶ 802.15.4g, Wireless M-Bus S, T, C, N, Wi-SUN, ZigBee, 6LoWPAN

### Industry-Leading RF Performance

- ▶ Receiver sensitivity, BER = 10<sup>-3</sup>:
  - -134.4 dBm @ 0.1 kbps
  - -103.0 dBm @ 300.0 kbps
- ▶ Receiver blocking:
  - 70 dB ACR
  - 100 dB @ 10 MHz offset
- ▶ Transmitter output power: -20 dBm to +17 dBm in 0.1 dB steps
- ▶ Phase noise: -143 dBc/Hz @ 2 MHz offset

### Low Power

- ▶ Sleep current with memory retention = 10 nA
- ▶ Smart wake modes—autonomous radio operation

### Simplified User Interface via ARM Cortex-M0

- ▶ Fully programmable packet handler
- ▶ Radio control interface simplifies host MCU coding

## ADF7030-1 Evaluation

The ADF7030-1 EZ-KIT® is an evaluation and development system for the ADF7030-1 high performance, sub-GHz, RF transceiver. Four EZ-KIT models are available for the ADF7030-1, covering various frequency ranges.

Each ADF7030-1 EZ-KIT allows fast and thorough evaluation of the ADF7030-1 radio. The LCD display allows immediate out of the box, board-to-board testing without the need for connecting to a workstation. The platform supports host processor code development using the ADuCM3029 EZ-KIT motherboard (ADZS-UCM3029EZLITE).

Model	Description	Price U.S.
<a href="#">ADF70301-169EZKIT</a>	Evaluation and development kit (169 MHz)	599.00
<a href="#">ADF70301-433EZKIT</a>	Evaluation and development kit (433 MHz)	599.00
<a href="#">ADF70301-868EZKIT</a>	Evaluation and development kit (863 MHz to 876 MHz)	599.00
<a href="#">ADF70301-915EZKIT</a>	Evaluation and development kit (902 MHz to 928 MHz)	599.00
<a href="#">EV-ADF70301-169BZ</a>	Daughter board (169 MHz)	100.00
<a href="#">EV-ADF70301-433AZ</a>	Daughter board (433 MHz, separate PA and LNA match)	100.00
<a href="#">EV-ADF70301-460BZ</a>	Daughter board (450 MHz to 470 MHz)	100.00
<a href="#">EV-ADF70301-868BZ</a>	Daughter board (863 MHz to 876 MHz, separate PA and LNA match, TCXO)	100.00
<a href="#">EV-ADF70301-915AZ</a>	Daughter board (902 MHz to 928 MHz, separate PA and LNA match)	100.00

## ADF7030-1 Protocols Supported

As the ADF7030-1 is highly flexible, it can support many popular protocols at the PHY layer. Additionally, the ADF7030-1 supports the multirate frequency shift keying (MR-FSK) PHY 802.15.4g specified packet format in the IEEE 802.15.4g-2012 standard with FEC, whitening, and interleaving at data rates of up to 150 kbps.



## Typical ADF7030-1 Applications:

### Water Meters

Why select the ADF7030-1?

This application requires:

- ▶ Battery operation where significant amount of battery is consumed in sleep mode
  - The ADF7030-1's sleep mode power consumption is best-in-class at 10 nA
- ▶ Long range connectivity to hard to reach nodes
  - The ADF7030-1's receiver sensitivity is best-in-class at -134 dBm at 100 bps



### Industrial Remote Control

Why select the ADF7030-1?

- ▶ This application transmits mission critical data and requires best-in-class robustness and reliability. The ADF7030-1 can block interferers over 100 dB stronger than the wanted signal. This performance capability ensures critical data reaches its destination.



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