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SciSense

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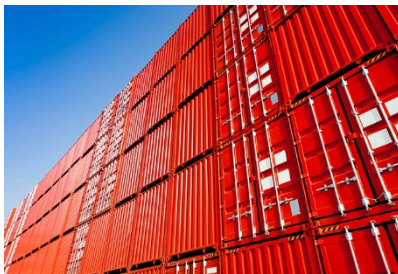
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LF Wakeup Receiver

Markets & Applications



- Active RFID tags
 - Container tracking
- Real-time location systems in buildings
 - Persons
 - Valuable goods/equipment
- Operator identification
 - Industrial machines
 - Various vehicles
 - Computers
- Access control
 - Hospitals
 - handicapped
 - Elderly
- Wireless sensor networks
 - Outdoor monitoring
 - Machine monitoring
 - Health monitoring

LF Wakeup Receiver

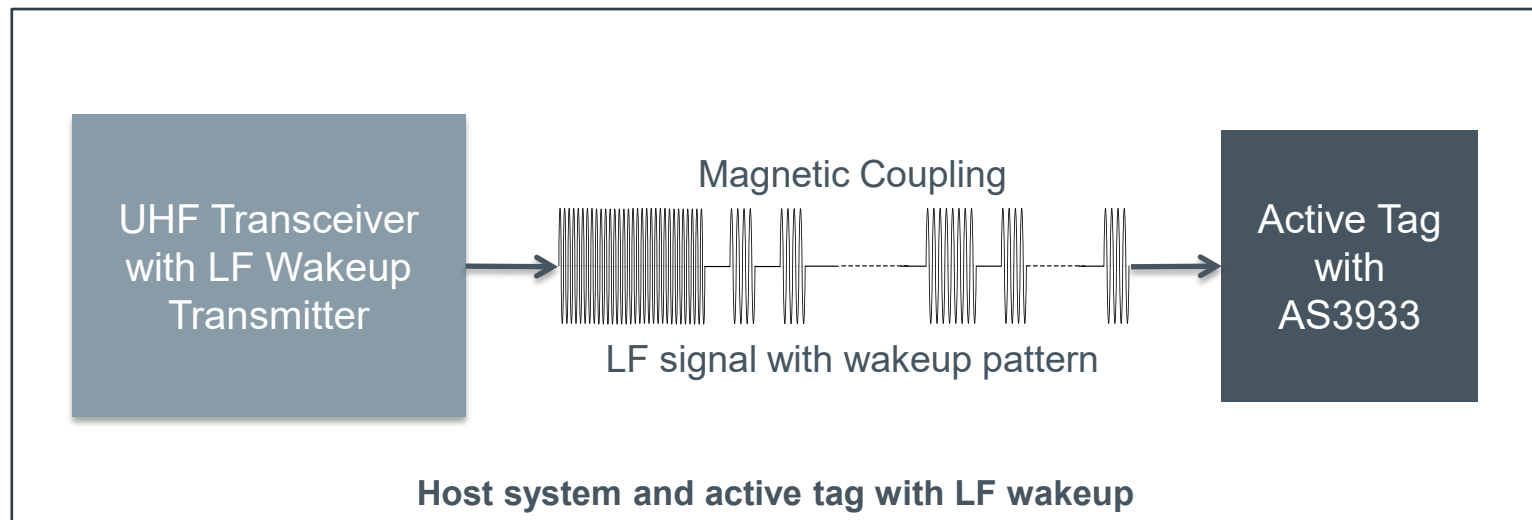
Overview

Device	Sensitivity	Frequency Range	Correlation Bits	Receiver Inputs	Antenna Tuning	Average Current Consumption
AS3930	100 μ V _{RMS}	100 – 150 kHz	16 bit	1D	No	2.7 μ A
AS3932	100 μ V _{RMS}	100 – 150 kHz	16 bit	3D	No	2.7 μ A
AS3933	80 μ V _{RMS}	15 – 150 kHz	32 bit	3D	Yes	2.7 μ A

- Best-in-class sensitivity
- Lowest power consumptions
- Widest frequency range

LF Wakeup Receiver

Typical system with wakeup

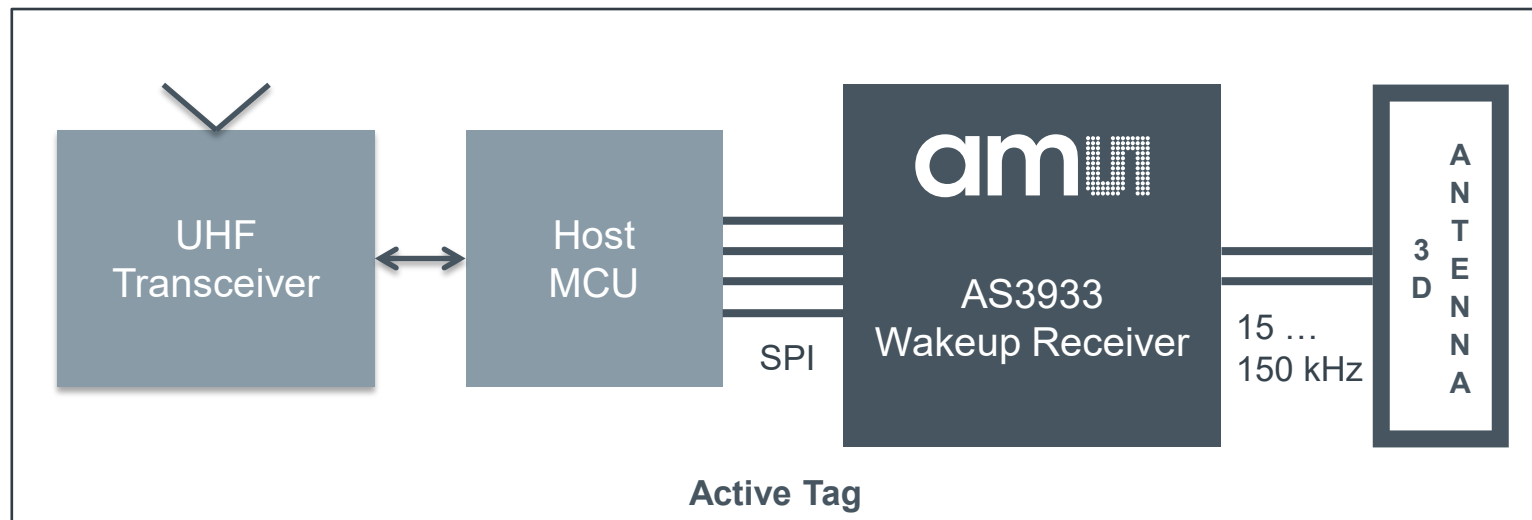


Typical system with LF wakeup

- The host system with a transceiver (typically UHF) includes a LF wakeup transmitter
- The active tag includes the AS3933 wakeup receiver
- Typical wakeup range is up to 10 meters
- LF wakeup frequency is programmable from 15 kHz to 150 kHz

LF Wakeup Receiver

Typical active tag

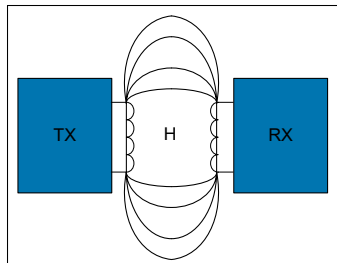
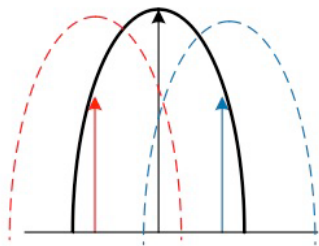


Typical active tag

- Main function is to wake up the host system
- The LF antenna coils consist of 3 axis (x/y/z)
- AS3933 provides automatic antenna tuning

LF Wakeup Receiver

Key Features & Benefits



- Automatic antenna tuning
 - Best performance of the solution
 - Simplifies antenna matching network
- Best sensitivity in the industry
 - Maximum communication range
 - Allows usage of cheaper antenna coils
- Widest frequency range
 - More flexibility
 - Allows usage of LF frequency outside the conventional range (125 and 134 kHz)
 - Less disturbers
- 32-bit pattern detection
 - Very resistant to false wakeup events
 - Reduces overall power consumption of the system

AS3933 – LF Wakeup Receiver

Key features

- 1, 2 or 3-channel ASK wake-up Rx
- Frequency range: 15-150 kHz
- Best in class wakeup sensitivity: $80\mu\text{V}_{\text{RMS}}$
- Automatic antenna tuning
- Low current consumption: 2.7 μA
- 16- or 32-bit correlation
- TSSOP16 & QFN16

Benefits

- Wide frequency range allows for customization
- High sensitivity = longer range, cheaper coils
- Automatic antenna tuning alleviates miss-tuning
- Low power consumption = extended battery life
- Programmable capabilities = system flexibility

Applications

- Active RFID tags
- Real-time location systems
- Wireless sensors
- ID systems (operator, access control)
- Asset tracking in harsh & wet applications

