

Energy Harvesting Wireless Technology

Energy harvesting wireless technology is able to generate a signal of astonishing range from an extremely small amount of energy. A standard energy harvesting wireless module can transmit a signal up to 300 meters in free field. The secret lies in the signal duration: the entire process is started, executed and completed in no more than a thousandth of a second.

Energy harvesting wireless standard comprises following features:

High reliability

- License-free 868 MHz, 902 MHz and 928 MHz frequency bands with 1% duty cycle
- Multiple telegram transmission with checksum
- Short telegrams (approx. 1 ms) for little probability of collision
- Reliable range: 30 meters in buildings and 300 meters in free field
- Repeater available for range extension
- One-way and bidirectional communication

Low-energy need

- High data transmission rate for sensor information of 125 kbit/s
- Small data overhead

Interoperability

- Wireless protocol defined and integrated in modules
- Including the international wireless standard ISO/IEC 14543-3-1X
- Sensor profiles are standardized in the EnOcean Alliance to ensure product interoperability across all product manufacturers
- Unique transmission ID (32 bits)

Coexistence with other wireless systems

- No interference with DECT, WLAN, PMR and other systems
- System design verified in industrial environment