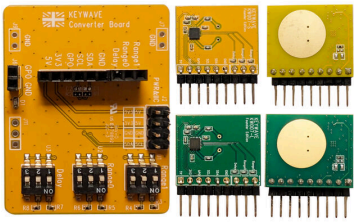
KW007 Motion Sensor Module & EVK
- Reliable Motion Detection Beyond PIR -

Compact 5.8GHz Doppler motion sensor with adjustable range,
low power operation, and simple GPIO integration.



It's a quick review to speed up your purchase,
you can find a more detailed datasheet and usage later.

KW007 ,what it is:

- Compact 5.8GHz Doppler motion sensor module
- Adjustable detection range (10 cm – 12 m depending on model)
- < 30 µA system current
- Digital GPIO trigger output
- Optional I²C programmable control
- Example code provided

Available Models

Model	Max Range
KW007-SE	4 m
KW007-L	12 m

Detection range adjustable via resistor or I²C configuration.

Purchase Link in Digikey:
https://www.digikey.co.uk/en/products/detail/keywave-technology-limited/KWEVK0072SE2L2602/28960699

Datasheet and related Code in Github:
https://github.com/namexavailable/KW007EVK

Support and before purchase questions:
We will provide example implementations, code and guide via our website: keywavetech.co.uk
If you need urgent support please mail to w@keywavetech.co.uk or contact us via LinkedIn

Please visit our website for most updated information: www.keywavetech.co.uk

KEYWAVE

KW007-S / SE / L
5.8GHz Doppler Motion Sensor Module
2026 - 02- 26

KEY FEATURES STRIP

- 📏 *Adjustable Range*
- ⏱️ *Adjustable Pulse Duration (1–64 s)*
- 📦 *Works Through Non-Metal Covers*
- 🔋 *Low Power (<30 μA)*
- 💻 *Direction Data via I²C*
- 🛡️ *Stable Against Wi-Fi / BLE / Temperature*

What It Does

- *Accurately and quickly detects active motion*
- *Outputs digital HIGH signal via GPO*
- *Configurable dynamic and provides directional data (toward / away) via I²C*
- *Operates reliably through plastic enclosures*
- *Stable against airflow, vibration, Wi-Fi and BLE interference*

What It Is NOT

- Not a static human presence sensor
  (With MCU processing and sensitivity tuning, presence-like behavior may be approximated.)
- Not a camera
- Not a high-power radar module
- Not heat-based detection (unlike PIR)

Why not PIR?

Lower false triggers.
Works through plastic.
Less sensitive to temperature and lighting.

What range can I expect?

10 cm – 12 m (model dependent).
Performance depends on enclosure and environment.

How do I evaluate it?

Use KW007 EVK.
No firmware required for basic testing.

Applications, Integration & Performance Overview

Typical Applications

KW007 is designed for reliable motion-triggered activation in environments where conventional PIR sensors may suffer from false triggering or environmental instability.

Smart Building & Energy Applications

- Smart lighting control
- HVAC activation
- Corridor and stairwell automation
- Energy-saving occupancy-based switching
- Lighting inside enclosed fixtures

Commercial & Public Installations

- Interactive kiosks and displays
- Digital signage wake-on-motion
- Automatic switches and panels
- Equipment activation in public spaces
- Access control pre-trigger systems

Industrial & Embedded Systems

- Machine wake-on-motion
- Enclosed equipment detection
- Temperature-variable environments
- Vibration-prone installations
- Compact embedded product designs

System Integration Overview

KW007 is designed for flexible integration, from simple hardware-only trigger systems to advanced programmable platforms.

Option A – Direct GPIO Integration (No MCU Required)

KW007 → GPO Output → Relay / Logic Input

- Digital HIGH output when motion detected
- Adjustable pulse duration (1–64 seconds)
- Ideal for direct switching applications
- Minimal development effort

Option B – MCU + I²C Advanced Integration

KW007 → I²C → MCU (Cloud / IoT Platform) → Pin to your applications

- Adjustable detection range
- Adjustable sensitivity
- Adjustable output duration
- Directional data (approaching / moving away)
- Real-time configuration control
- Event logging and condition-based programming

Example firmware is available to accelerate integration.

Comparison: PIR vs KW007

KW007 is not a PIR replacement in all cases — it is designed for applications requiring greater stability and enclosure flexibility.

Feature	PIR Sensor	KW007
Detection Principle	Infrared heat change	**RF Doppler motion**
Temperature Sensitivity	High	**Low**
False Trigger Susceptibility	Heat / airflow / sunlight	**Significantly reduced**
Detection Through Plastic	No	**Yes (non-metal)**
Output Data	Trigger only	**Trigger + Direction (I²C)**
Environmental Stability	Moderate	**High**
Integration	Very simple	**Simple (GPIO) or advanced (I²C)**
Power Consumption	Very low	**Low (<30 µA typical)**

Detection Characteristics

KW007 is designed to detect active motion.
At close range, small movements such as hand gestures can trigger detection.
At longer distances, larger displacement is required to maintain detection stability and prevent false triggering. Long-range performance depends on:

- Target size
- Target speed
- Mounting height
- Installation angle
- Enclosure material and thickness

Detection ranges listed in specifications represent maximum reference values under optimal conditions.

Engineering-Ready Design

KW007 supports both rapid evaluation and scalable production deployment.

- Adjustable via hardware resistor configuration
- Fully programmable via I²C
- Example code provided
- Production pre-configuration available for volume orders
- Compact footprint (~22 mm class module)
- Designed for low-power systems

Support and before purchase questions:

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