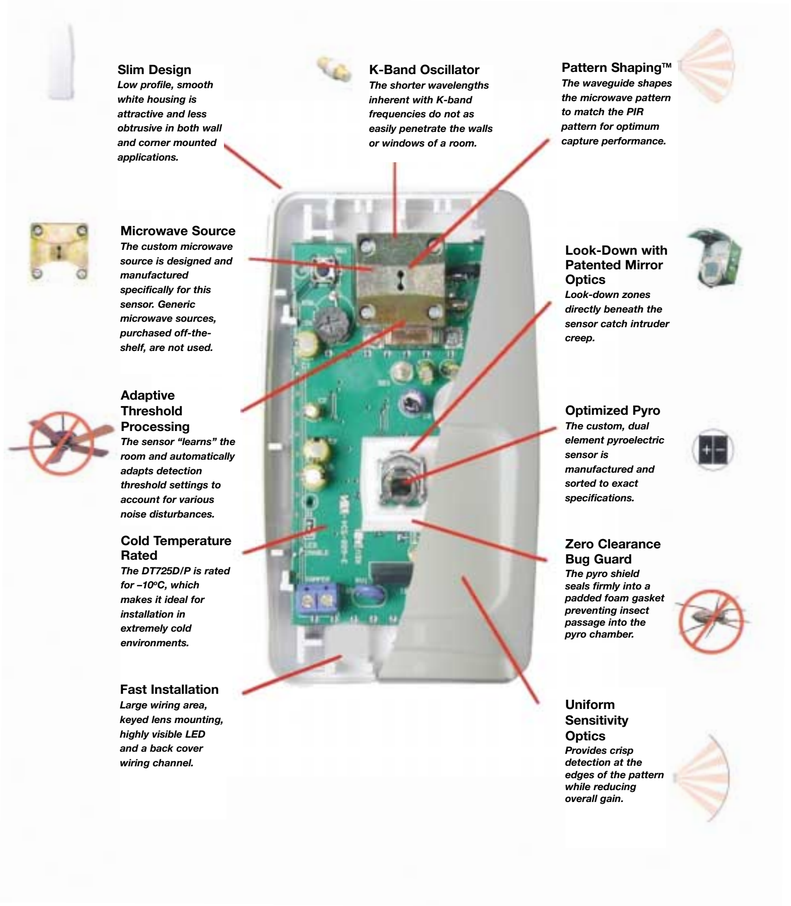
DT-725D/P

Duel Tec© Motion Sensor with K-band Technology



Slim Design
Low profile, smooth white housing is attractive and less obtrusive in both wall and corner mounted applications.

K-Band Oscillator
The shorter wavelengths inherent with K-band frequencies do not as easily penetrate the walls or windows of a room.

Pattern Shaping™
The waveguide shapes the microwave pattern to match the PIR pattern for optimum capture performance.

Microwave Source
The custom microwave source is designed and manufactured specifically for this sensor. Generic microwave sources, purchased off-the-shelf, are not used.

Look-Down with Patented Mirror Optics
Look-down zones directly beneath the sensor catch intruder creep.

Adaptive Threshold Processing
The sensor "learns" the room and automatically adapts detection threshold settings to account for various noise disturbances.

Optimized Pyro
The custom, dual element pyroelectric sensor is manufactured and sorted to exact specifications.

Cold Temperature Rated
The DT725D/P is rated for –10ºC, which makes it ideal for installation in extremely cold environments.

Zero Clearance Bug Guard
The pyro shield seals firmly into a padded foam gasket preventing insect passage into the pyro chamber.

Fast Installation
Large wiring area, keyed lens mounting, highly visible LED and a back cover wiring channel.

Uniform Sensitivity Optics
Provides crisp detection at the edges of the pattern while reducing overall gain.

Slim Design

The K-band microwave technology provides excellent pattern shaping™ along with an attractive low profile design.

False Alarm Immunity Features

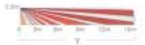
- PIR/Microwave requires dual detection for alarm
- Noise filtering on both the PIR and the K-Band Microwave eliminates burst events.
- Adaptive Thresholds "learn" false alarms sources in the room.
- RFI at 30 V/m is a standard so high that metal starts to get warm at 30 V/m.
- White light immunity of 6,500 Lux prevents false alarms to white light.

DT725D/P Detection Patterns

Top View
Wide Angle Lens

Side View
Wide Angle Lens

Top View
Curtain Lens



Side View
Curtain Lens

DT725D/P Specifications

- Detection Technology PIR Microwave (K-Band Frequency)
- PIR Fields-Of-View

  2 overlapping tiers of view per PIR finger

	DT725D/P
Long Range	22
Intermediate	12
Lower	6
Down	4

- Sensitivity
  2-4 Steps within the field-of-view
- Physical Dimensions
  White, high-impact, flame-retardant, polished ABS plastic housing.
  11.9 cm x 7.1 cm x 4.2 cm (h x w x d)
- Mounting Guidelines
  Mount on walls or in the corner. Optional mounting brackets available for swivel mounting. Maximum range obtained at a height of 2.3m
- Power Requirements
  7.5 – 16 VDC, 35mA, 12 VDC
  AC Ripple: 3V peak-to-peak @ nominal 12 VDC
- Tamper Switch
  Form A (N.C.) switch rated at 50mA, 24 VDC
- Alarm Relay DT725D/P
  Energized Form A (N.C.) rated at 100mA at 42 VDC
- Microwave Frequency
  K-band microwave, 24.125 – 24.220GHz. The designed and built Gunn diode oscillator and Schottky diode mixer are located in two coupled waveguide cavities. Both are temperature compensated for frequency stability.
- Microwave Supervision
  Independent circuit supervises microwave against failure.
- Operating Temperature
  -10oC to +55oC : 5% to 95% relative humidity, non-condensing.
- Radio Frequency Interference (RFI)
  Minimum 30 V/m across the frequency range from 10 to 1000MHz
- White Light Immunity
  6500 Lux
- Approvals
  UL listed
  Conforms to EN-50131-1 Grade 2
  Environmental Class II, Type B

Accessories

- SMB-10 Universal white swivel mount bracket
- SMB-10T Tampered universal white swivel mount bracket
- SMB-10C Universal white ceiling mount bracket
- Lens Option Curtain

For further information please contact :

Honeywell

DT-725D/P

Duel Tec© Motion Sensor with K-band Technology

EN 50131-1 COMPLIANT

Suitable in Security Grade 2
Environmental Class II

FEATURES

K-band Microwave Technology

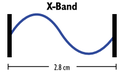
Uniform Sensitivity Optics

Microwave Adapt Threshold

White Light Immunity

Effective in Hot and Cold Environments

K-band Microwave
Frequency Wavelength
(24.1 - 24.2 GHz)



X-band Microwave
Frequency Wavelength
(10.52 GHz)

K-Band Dual Technology

Previous K-band units were extremely expensive and usually reserved for the highest security applications. But not anymore, the IntelliSense K-band DUAL TEC DT725D/P motion sensor is competitively priced and provides state-of-the-art K-band microwave performance.

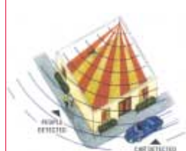
What is K-Band?

K-band is a higher frequency, shorter wavelength microwave signal. Its shorter wavelength provides superior fast-catch performance and helps keep the microwave signal from penetrating beyond the walls of the room.

X-Band microwaves travel through walls

Almost all of today's sensors use the X-band microwave frequency. But because of their longer wavelengths. X-band microwaves often travel well beyond walls and windows. If the microwave sensitivity is not properly adjusted, the sensor will detect motion outside the room as if it were inside.

X-Band Microwave at 100%



X-Band microwave frequencies travel through walls and windows. Consequently, people, cars and other moving objects outside the room can trigger X-band microwave sensors.

If the PIR false alarms due to infrared activity in the room (such as a heater or fireplace) at the same time that the microwave detects movement outside the room, the sensor will false alarm.

K-Band stays in the room

K-bands shorter wavelength has greater resistance penetrating walls and windows. So by staying in the room, K-band reduces potential false alarms.

K-Band Microwave at 100%

K-band signals have less penetration through walls and windows.

Is adjusting microwave sensitivity enough?

X-Band Microwave at 50%

Set at 50% sensitivity, the X-band microwave above does not detect the person, but does detect the passing car.

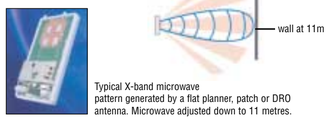
Microwave sensitivity is adjusted to fit the room by using the mass of a human target walking the pattern. Properly adjusted, the microwave will not detect the mass of a person walking on the other side of the wall or window. However, it is possible that a moving object of larger mass such as a car or blowing tree would be detected. As the chart below shows, K-band has much less penetration through walls of the room than X-band.

Typical Amount of Microwave Signal Blocked by Walls & Windows

	Signal Blocked by Solid Outside Wall	Signal Blocked by Framed Glass Wall
X-Band (most common frequency)	85%	20%
K-Band special designed	96%	60%

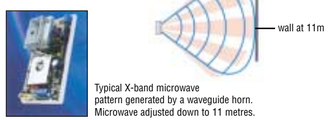
Microwave Antenna Pattern Comparison

X-Band flat (planer) microwave antenna



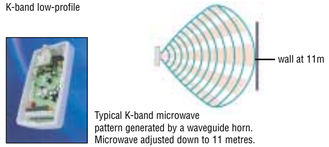
Typical X-band microwave pattern generated by a flat planner, patch or DRO antenna. Microwave adjusted down to 11 metres.

X-Band flat waveguard microwave antenna (DT-400)



Typical X-band microwave pattern generated by a waveguide horn. Microwave adjusted down to 11 metres.

K-band low-profile



Typical K-band microwave pattern generated by a waveguide horn. Microwave adjusted down to 11 metres.

Pattern Shaping™ K-Band Technology

When you reduce the microwave sensitivity of a typical X-band based sensor to fit the size of the room, especially those sensors with flat antennas, the microwave pattern tends to collapse significantly on the sides. Using X-band waveguide extending out from the housing helps better shape the pattern.

With the DT725D/P, the shorter K-band wavelengths use a smaller, low-profile waveguide. When you adjust the K-band sensor with the Pattern Shaping™ waveguide technology, the microwave pattern holds its shape and matches the PIR pattern, resulting in quick, accurate capture of intruders as well as preventing potential false alarms.

With all dual technology sensors, for fastest catch and best false alarm immunity, always adjust the microwave sensitivity to fit inside the room. For example, in an 11 metre room, follow the installation instructions to reduce microwave sensitivity so that it stays in the room. As illustrated on the right, the microwave detection pattern changes when adjusted down to fit the room size.

IntelliSense® K-Band DT725D/P

FEATURE	BENEFIT	ADVANTAGE
Dual Technology	The microwave and PIR technologies cross-check each other and each ignores different false alarm sources	Better catch performance, reliability and false alarm immunity.
K-Band Microwave	Shorter wavelength enables the microwave pattern to be more tightly controlled, plus the pattern doesn't penetrate walls or windows as easily.	Fewer false alarms.
K-Band Pattern Shaping™	Microwave and PIR patterns closely match one another at close, medium and far ranges.	Better false alarm immunity since disturbances outside both patterns are ignored.
Look-Down Optics	Detects intruders sneaking under the sensor to gain entry or disable the sensor.	Catch performance directly beneath the sensor.
Faster Down-The-Throat Capture	Single edge PIR and short K-band wavelength means fast catch down-the-throat.	Prevents intruders from reaching the sensor undetected.
Zero Clearance Bug Guard	Impossible for bugs to enter optics area.	Safeguards against performance interruptions and false alarms caused by bugs or dust. Ideal for any region around the world.
Low Profile Design	Sleek design in a smooth white housing is less obtrusive in homes and offices.	More attractive to customers.
Special Designed and Manufactured	Based on the most real-world field experience in sensor design.	Designed from the start to perform in harsh conditions around the world.

"The best way to see the revolutionary advances of the K-band DUAL TEC DT725D/P is to walk test it against your current sensor."

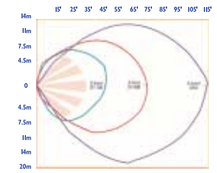
Walk Testing Maximum Microwave Ranges

- Use a large room, such as a hotel ballroom or, weather permitting, a soccer field, Mark the floor or ground off every 3 metres.
- Mount the sensors at one end
- Set the dual technology sensors at maximum sensitivity (typically shipped at maximum and installed without adjustment)
- Walk the pattern and mark the maximum microwave range on the sides and in front.
  Note: Microwave range on some sensors may extend out as far as 43 metres and as wide as 27 metres.
- Walk the pattern and mark the maximum PIR range on the sides and in front.
- Next, adjust the microwave sensitivity for detection at 11 metres for an 11m rated sensor, and 15 metres for a 15m rated sensor.

Maximum Sensitivity

The microwave patterns of most dual technology sensors extend considerably farther than you might expect.

Try it for yourself



With sensitivity set at 100%, some 11 metre sensors have over 35 metres of microwave range.

Adjusted to 11 metres

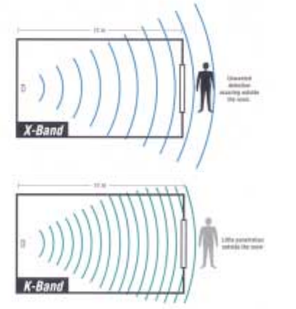
In every installation, the microwave range should be adjusted down so that the pattern is within the room.

With range adjusted to fit a normal room, the K-band continues to hold its pattern, closely matching the PIR pattern.

Sample X-band DRO, X-band waveguide and K-band waveguide range adjusted to fit an 11 metre room.

Walk Testing Microwave Transmissions through Walls and Windows

- Mount the sensor in an average sized room, with microwave sensitivity at maximum.
- Watch the microwave LED and have a partner walk on the outside of the far wall. Using an outside wall with a window is most realistic.
- Have a partner walk close to the wall and at a distance from the wall. (Using walkie-talkies helps with communication).
- Try moving a car on the other side of the wall.



K-band sensors minimize microwave penetration through walls and windows.