

Commercial Series

Detection delivered. Reliability assured.



- ▶ MOTION DETECTED
- ▶ 4.57 METERS
- ▶ NO ALARM



- ▶ MOTION DETECTED
- ▶ 2.36 METERS
- ▶ NO ALARM



- ▶ MOTION DETECTED
- ▶ 1.85 METERS
- ▶ ALARM



- ▶ MOTION DETECTED
- ▶ 2.08 METERS
- ▶ NO ALARM



BOSCH



Detection delivered. Reliability assured.
Commercial Series Motion Detectors



Commercial Series

- Building upon the technology of the residential market leading **Blue Line Gen2 Motion Detectors**, the new **Commercial Series** incorporates features that ensure the same reliability for commercial applications:
- Advanced optics **with increased focal length for longer range detection.**
 - First Step Processing accurately differentiates humans from other signals, now **with adjusted alarm thresholds for higher security applications.**
 - Integrated single PCB with best-in-class signal and noise levels ensure reliable detection, now featuring **wider dynamic range and increased sensitivity for increased catch performance.**



Commercial Series

- Two models:
- **TriTech** – 15 meter x 90°FOV
 - **TriTech+ with anti-mask** – 15 meter x 90°FOV, 20% higher sensitivity

What does the term “TriTech” mean?

“Dual” technology detectors feature Passive Infrared (PIR) and microwave Doppler radar detection. Bosch advances this technology by incorporating advanced signal processing that provides superior detection performance, thus the term “TriTech”. Thanks to our enhanced optics and electronics, which provide optimal PIR performance and our custom microwave Doppler radar designed and tuned specifically for each model, we are able to more reliably detect intruders, while ignoring other conditions that would trigger false alarms on traditional PIR or even competitive “Dual” technology detectors.



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Shared Features with BLG2 and Pro Series

Sliding, self-locking enclosure

Common mounting base between models*

Integrated bi-axial bubble level

Custom gap free, angled, lift-gate style terminal strips

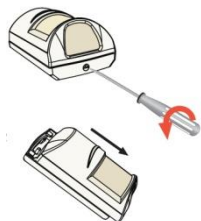
Flexible Mounting Height

Blue LED Umbrella of Protection

New to Commercial Series

Integrated end-of-line resistors

Sensitivity selection switch



Commercial Series

→ Two models:

- **TriTech** – 15 meter x 90°FOV
- **TriTech+ with anti-mask** – 15 meter x 90°FOV, 20% higher sensitivity

→ Family look, feel, and performance with other wall mount motion detectors from Bosch:

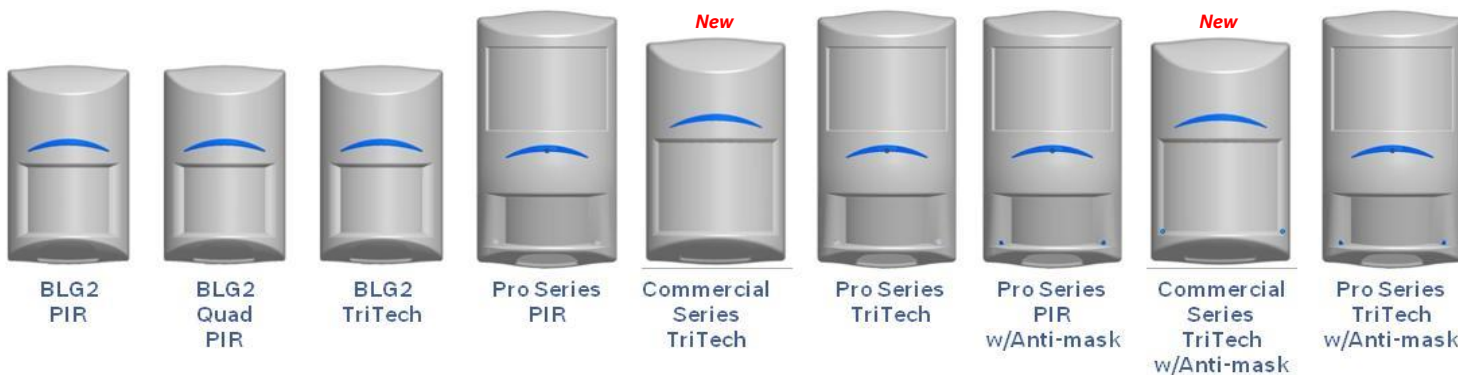
- Catch Performance
- False Alarm Immunity
- Ease of Installation



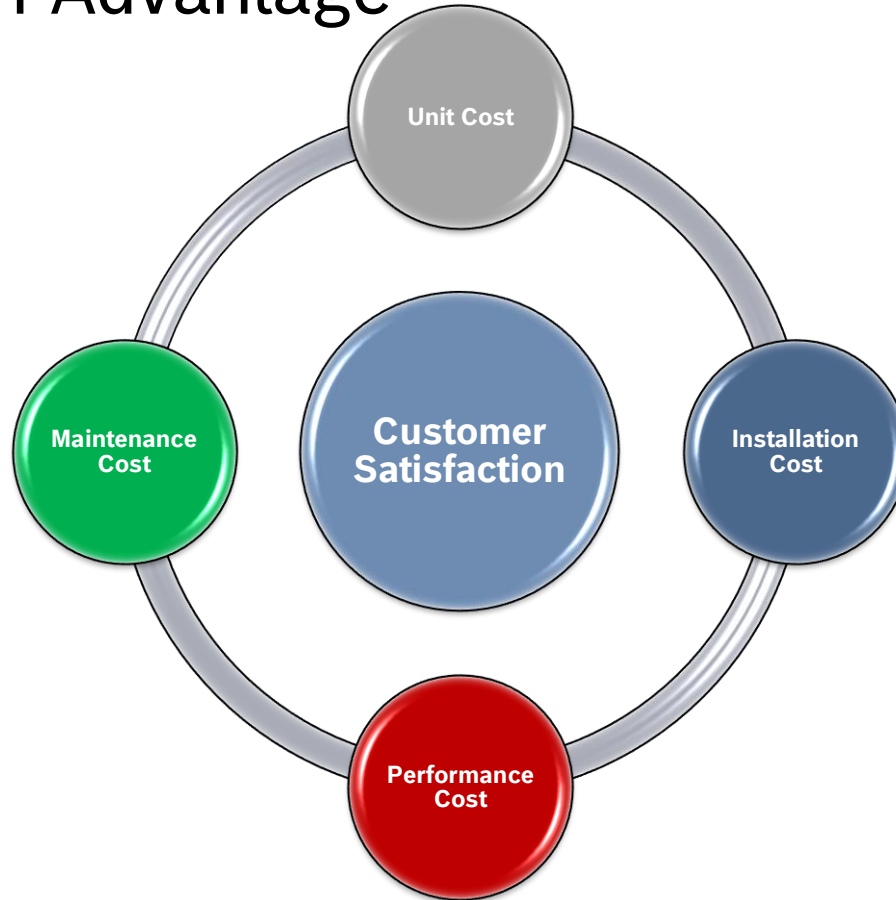
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Key Differentiators Between Families

	Blue Line Gen2	Commercial Series	Professional Series
Detection Range	12m (40ft)	15m (50ft)	18m (60ft)*
Signal Processing	First Step Processing		Sensor Data Fusion
PIR	Single Lens and Sensor		Dual Lenses and Sensors
Doppler Radar Processing	Microwave Noise Adaptive Processing		Range Adaptive Radar
Pet and Small Animal Immunity	Up to 45kg (100 lbs)	Up to 4kg (10 lbs)	
Wiring	Wire In Resistors	Integrated EOL Resistors	Wire In Resistors



The Bosch Advantage



Bosch detectors provide the lowest **Total Cost of Ownership**

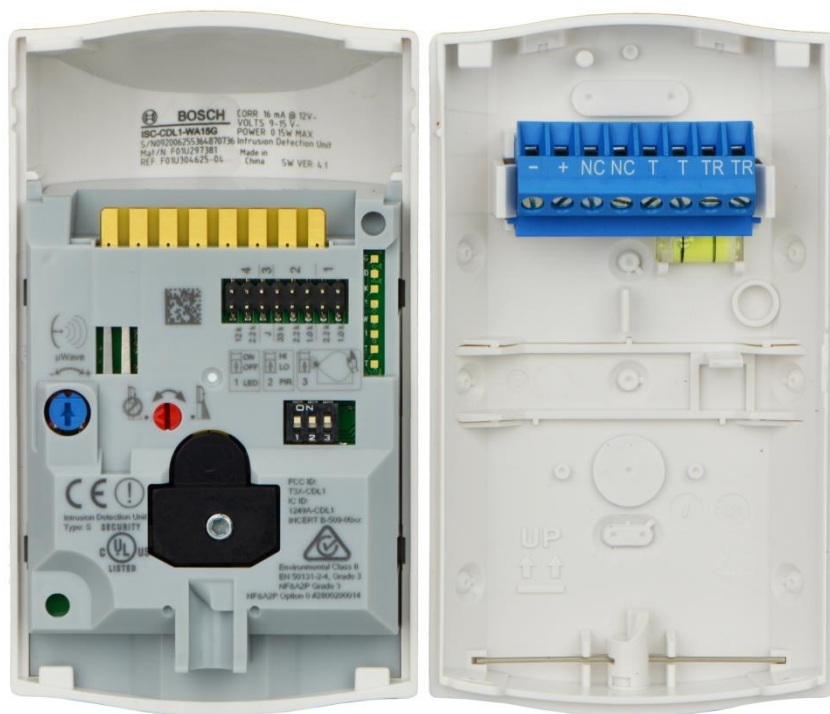


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Installation Cost

→ Reduce installation time while ensuring reliability of performance.

- Flexible mounting height – No adjustments required.
- Self-locking enclosure – Secure installation with the integrated cam lock means no cover screw to lose!
- Built in bi-axial bubble level.
- Custom gap free, angled, lift-gate style terminal strips – Easy, reliable wiring.
- Look down lens selection switch.
- Common mounting base – Easy upgrade and “swap-ability” of units after install.
- Sensitivity Selectivity Switch – Carry one unit for commercial and high security applications.

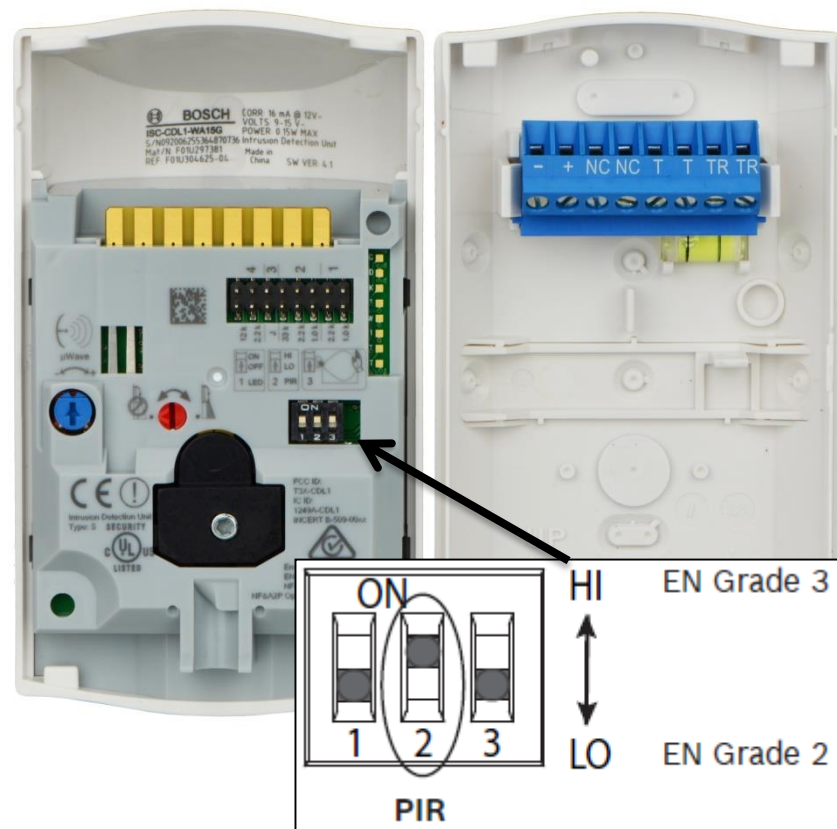


BOSCH

Installation Cost

→ Reduce installation time while ensuring reliability of performance.

- Sensitivity Selectivity Switch
 - TriTech settings:
 - **HI** – EN Grade 2, similar to TriTech+ in **LO** mode.
 - **LO** – Similar to BLG2 set in non-pet mode.
 - TriTech+ with Anti-mask settings:
 - **HI** – EN Grade 3, 20% higher sensitivity than TriTech **HI** mode.
 - **LO** – EN Grade 2, same sensitivity as TriTech **HI** mode.
 - Most competitors only comply in HI mode, refer to install guides.
 - Independent of Anti-mask on/off switch. Some competitors tie them together.



Commercial Series

Installation
Cost

	Installation Steps	Bosch Pro Series	Competitor
1	Open detector	Self locking cam with sliding cover	Remove screw and hinge cover
2	Unscrew and remove PCB	N/A	Required
3	Open wire holes	Knock-outs	Knock-outs
4	Level unit with wall or bracket	Integrated Bi-axial level	Additional tool required
5	Mount unit to wall or bracket	Required	Required
6	Install PCB in base	N/A	Required
7	Adjust PCB for mounting height	N/A	Review manual, fasten screw holding PCB
8	Adjust sensitivity of detector to application	N/A	Review manual, adjust jumpers
9	Enable/Disable features	Dip Switches	Jumpers
10	Connect wires to terminals	Removable, Lift gate, gap free	Crush plate
11	Install EOL resistors	Jumpers	Jumpers
12	Secure cover to detector	Self locking cam with sliding cover	Hinge cover and re-insert screw
Total Installation Time		5:58	7:44 – 10:52



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Installation Cost

Example for 1000 installed detectors

Benchmark	Installation Time in min	Labor costs per hour	Quantities per year	Total Install. Costs per year
Bosch	5:58	€40	1,000	€ 3,978
R	7:44			€ 5,156
U	9:13			€ 6,144
H	10:52			€ 7,244

**Savings
€ 1,178**

Bosch motion detectors produce real installation cost savings of € 1,178 per year





Performance Cost

- Catch Performance
- False Alarm Immunity



“When all else fails...use Bosch”

Bosch has a long history of patented, award winning performance in motion detectors.



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Performance Cost - Overview

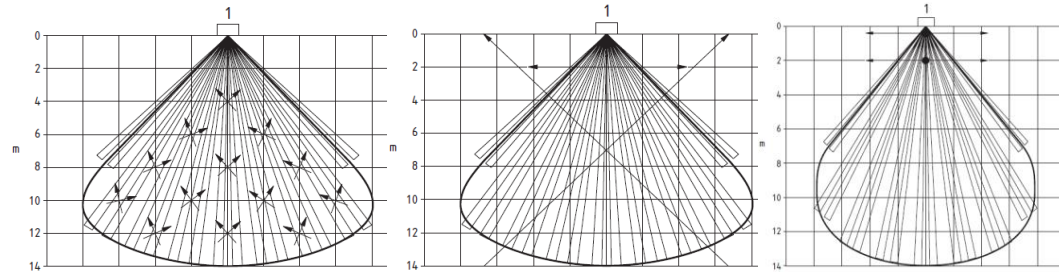
Manufacturer	Model	Technology	Range [m]	Catch Performance	False Alarm Immunity	Anti-mask	Overall
Bosch	ISC-CDL1-WA15	DUAL AM	15	98%	100%	97%	98%
Bosch	ISC-CDL1-W15	DUAL	15	98%	100%	NA	99%





Performance Cost – Catch Performance

Manufacturer	Model	Technology	Range	Hot Walk	Within Boundary EN Grade 2	Within Boundary EN Grade 3	High Velocity EN Grade 2	High Velocity EN Grade 3	Crawl EN Grade 2	Crawl EN Grade 3
Bosch	ISC-CDL1-WA15	DUAL AM	15	91%	100%	100%	100%	100%	100%	100%
Bosch	ISC-CDL1-W15	DUAL	15	91%	100%	54%	100%	100%	100%	100%





Performance Cost

- How does Bosch achieve this cost and performance advantage:
 - High quality optics+electronics
 - “Why is Commercial Series so big (thicker than Blue Line and some competitors)?”
 - Increased focal Length allows us to gather more energy from the field of view, resulting in better performance.



Competitive Reference: R - Focal Length is 24mm, thus explaining their poor catch performance (35 to 67%)

Family	Focal Length
Blue Line Gen2	25mm
Commercial Series	35mm
Professional Series	25mm, 35mm



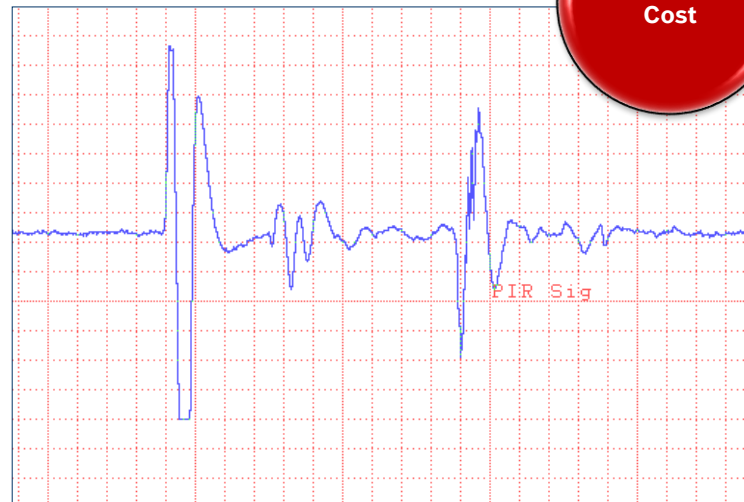


Performance Cost

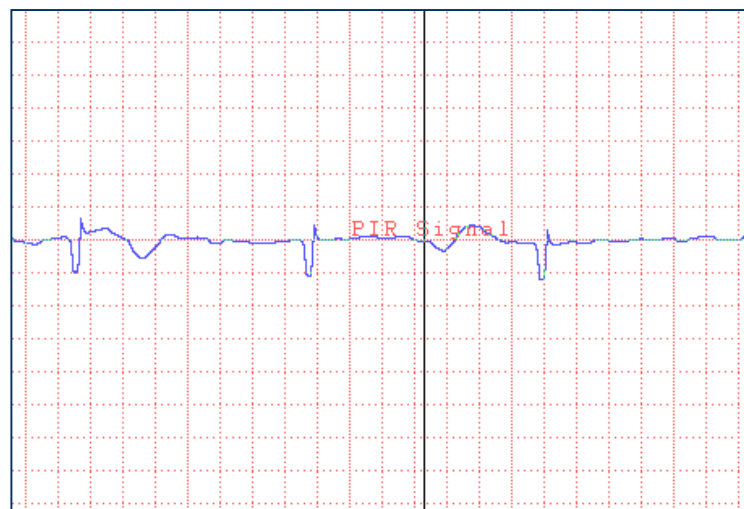
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Family	Focal Length
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Commercial Series	35mm
Professional Series	25mm, 35mm

Bosch PIR Signal Output



Competitor PIR Signal Output

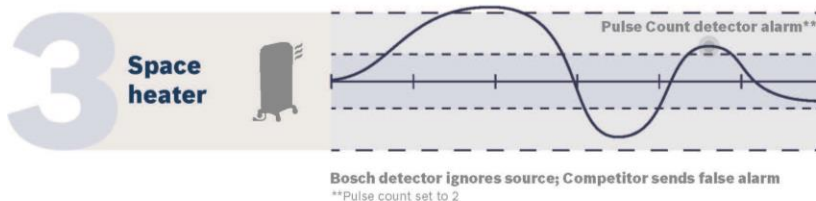
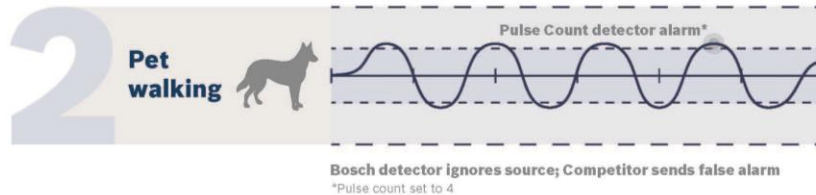
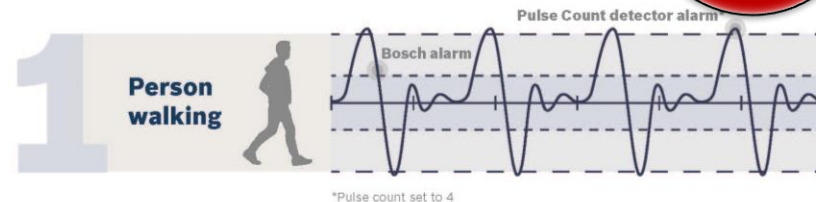




Performance Cost

→ How does Bosch achieve this cost and performance advantage:

- High quality optics+electronics
- Advanced signal processing

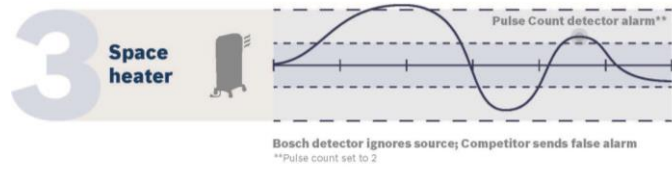
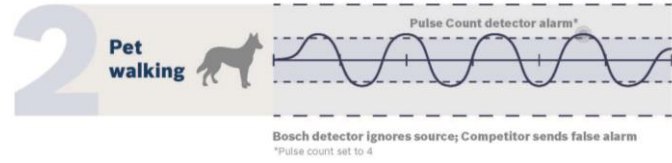
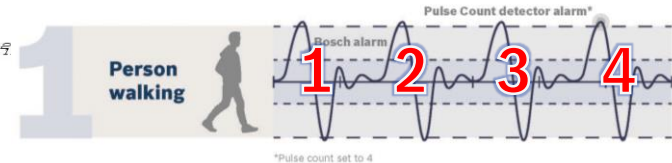
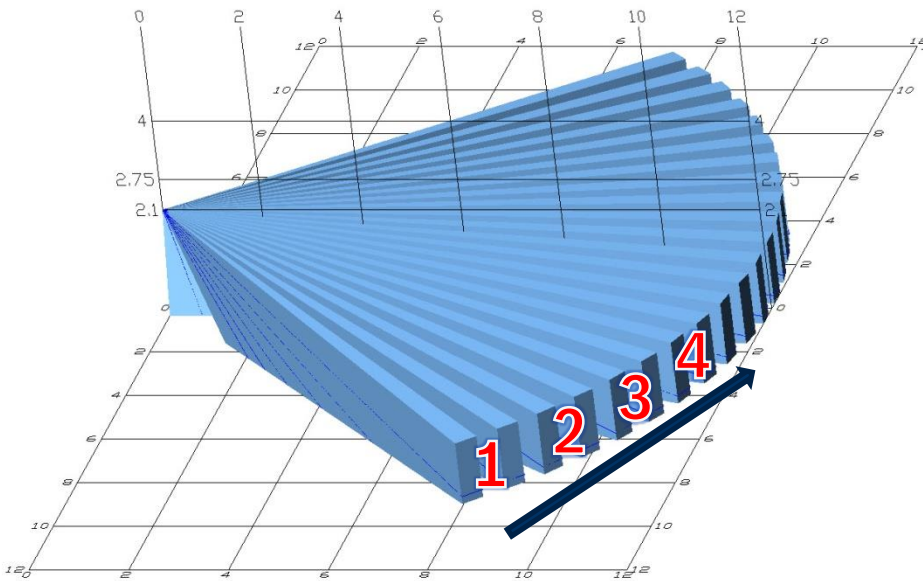


Blue Line Gen 2 and Commercial Series First Step Processing



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Commercial Series

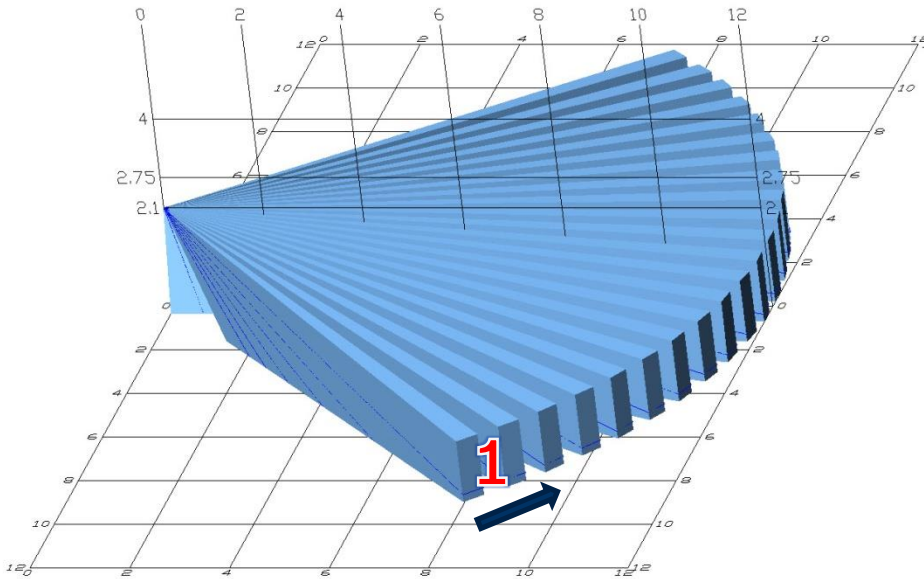


1. With a traditional pulse count detector set to 4 (low sensitivity), you could walk halfway across the field of view before being detected.

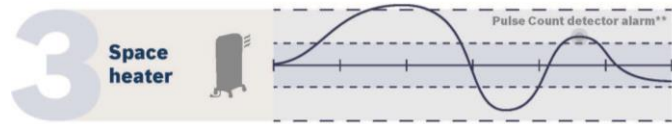


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Commercial Series



Bosch detector ignores source; Competitor sends false alarm
*Pulse count set to 4

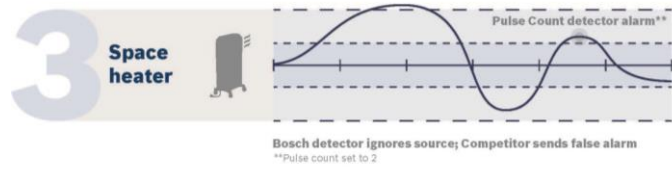
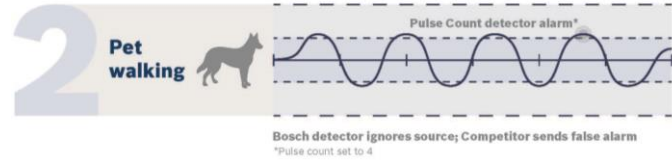
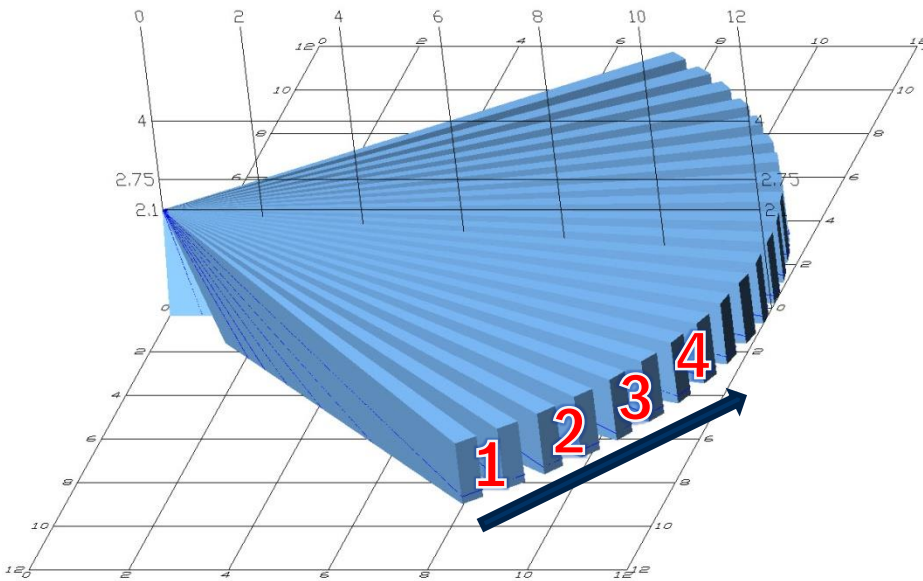


Bosch detector ignores source; Competitor sends false alarm
**Pulse count set to 2

1. Bosch can detect on the first pulse!



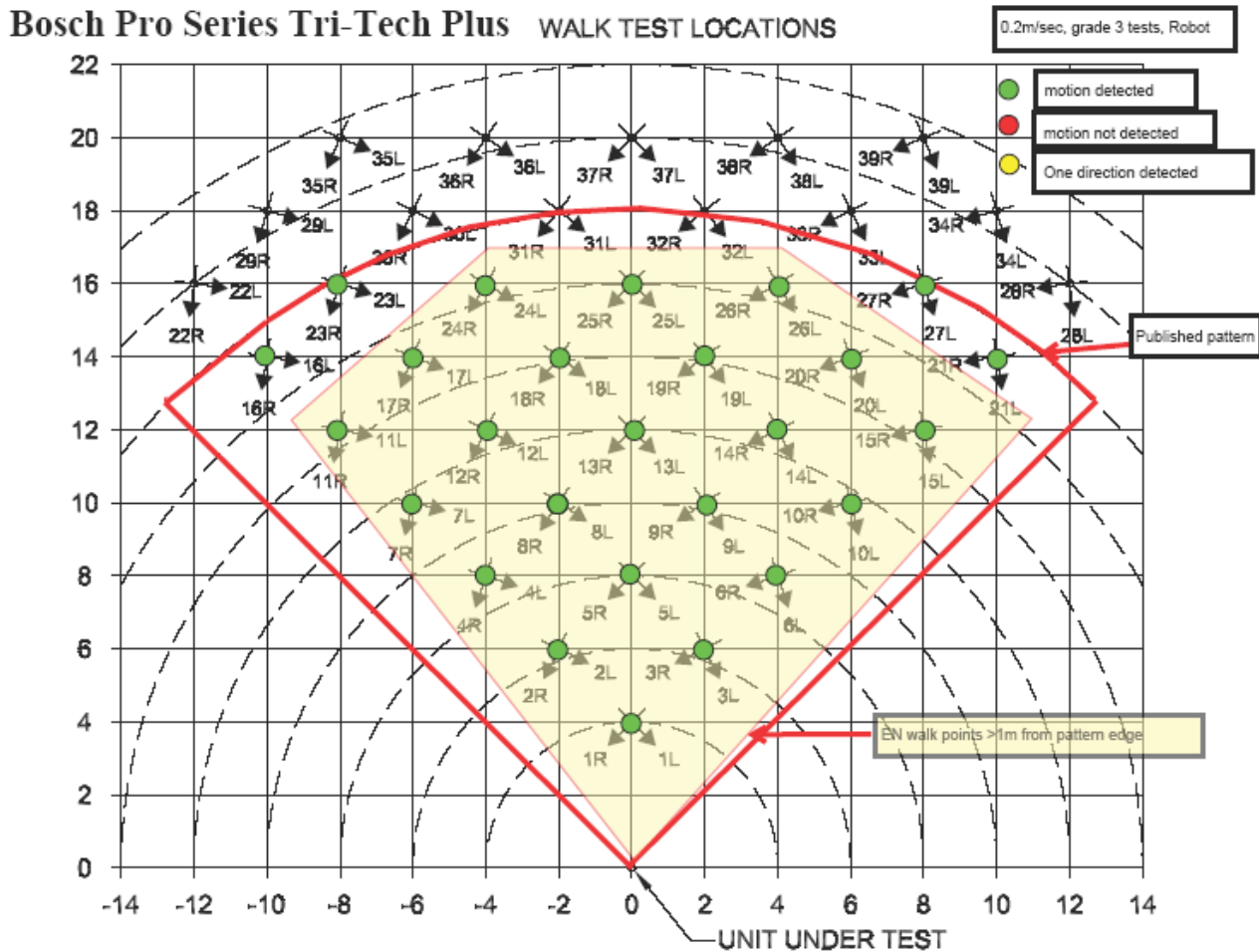
Commercial Series



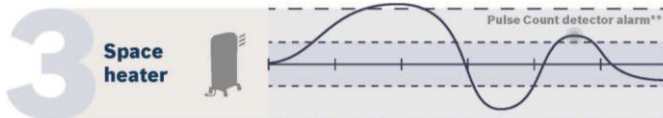
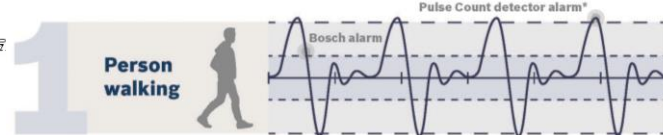
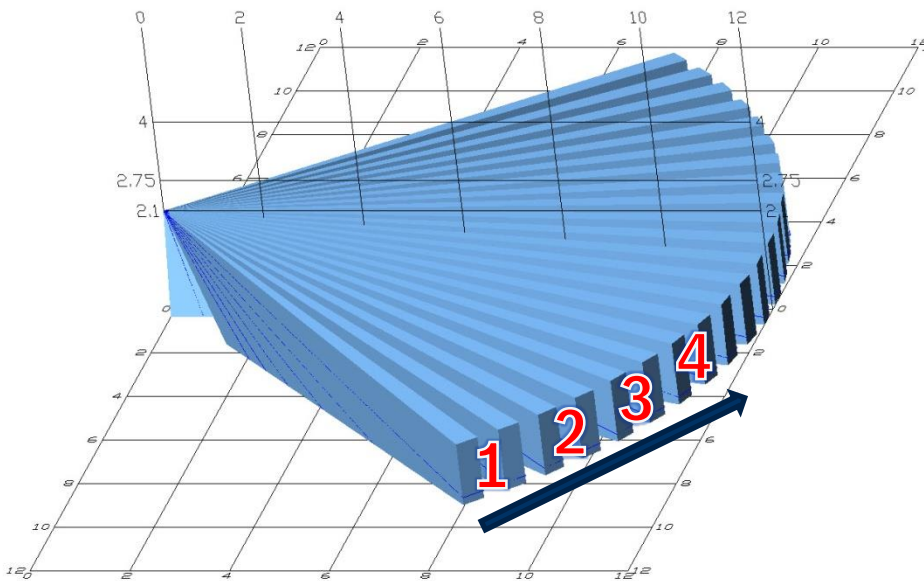
1. This is also why many competitors cannot meet EN requirements when Pulse Count is set to 4, they cannot detect within the 2 meters required movement distance.



Performance Cost – High Quality Custom Op



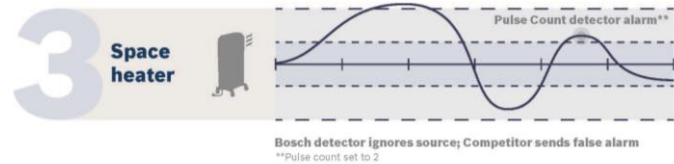
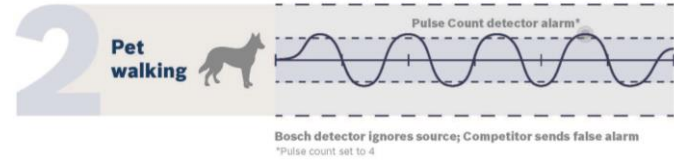
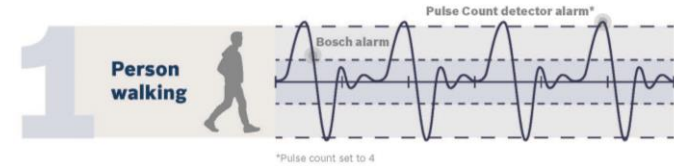
Commercial Series



1. With a traditional pulse count detector set to 4 (low sensitivity), you could walk halfway across the field of view before being detected.
2. With a traditional pulse count detector it is also more likely to result in a false alarm from a pet as it moves across the field of view.



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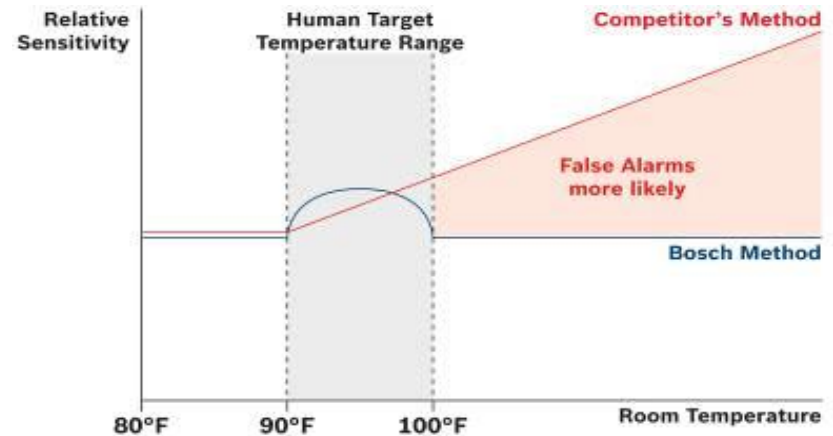
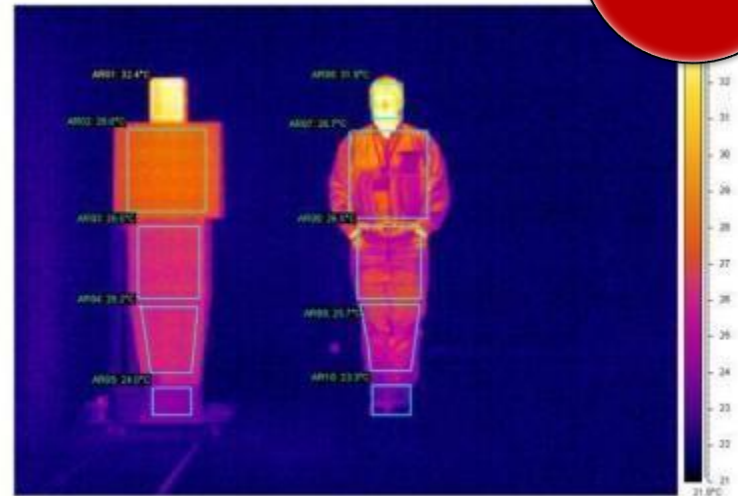
1. With a traditional pulse count detector set to 4 (low sensitivity), you could walk halfway across the field of view before being detected.
2. Bosch ignores false alarm source, while still detecting intruders.





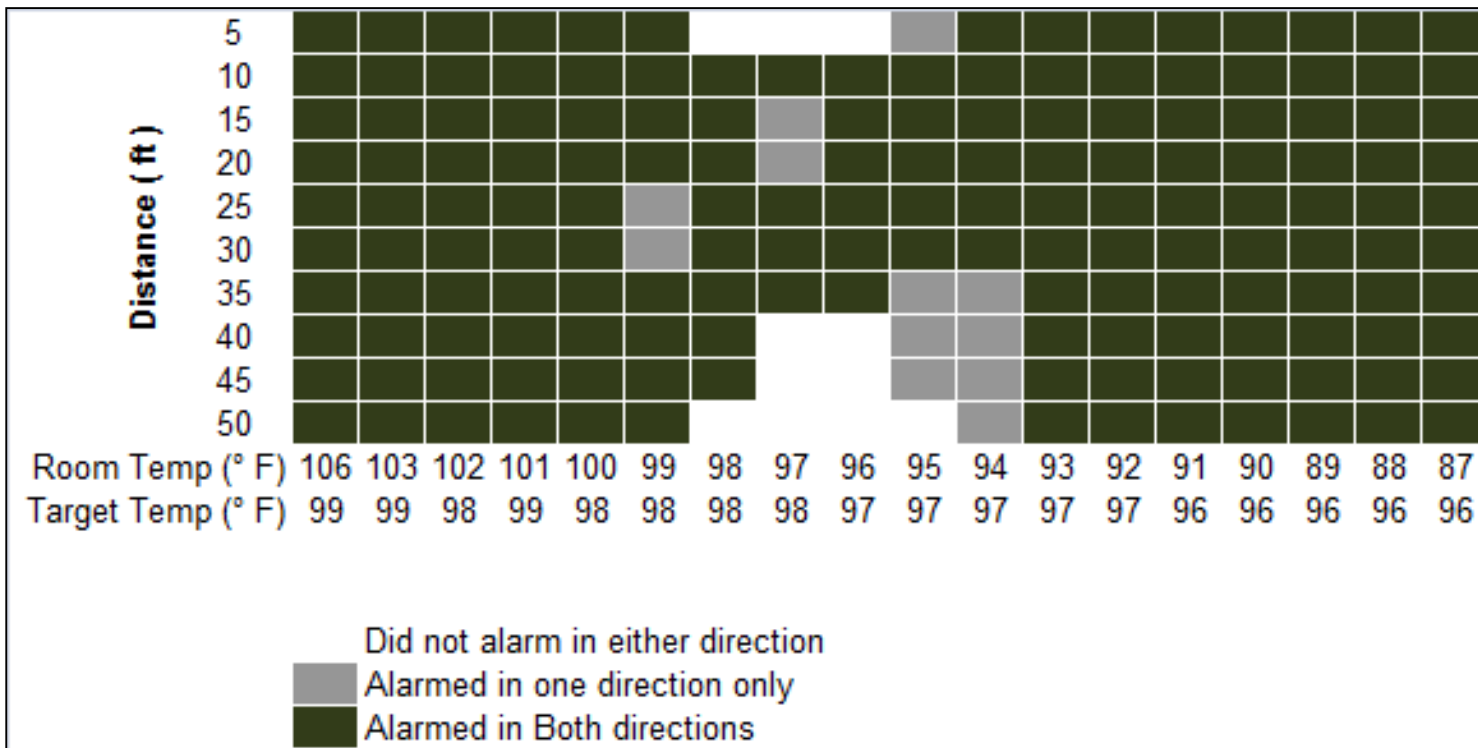
Performance Cost

- How does Bosch achieve this cost and performance advantage:
- High quality optics+electronics
 - Advanced signal processing
 - Dynamic Temperature Compensation





Performance Cost – Dynamic Temperature Compensation



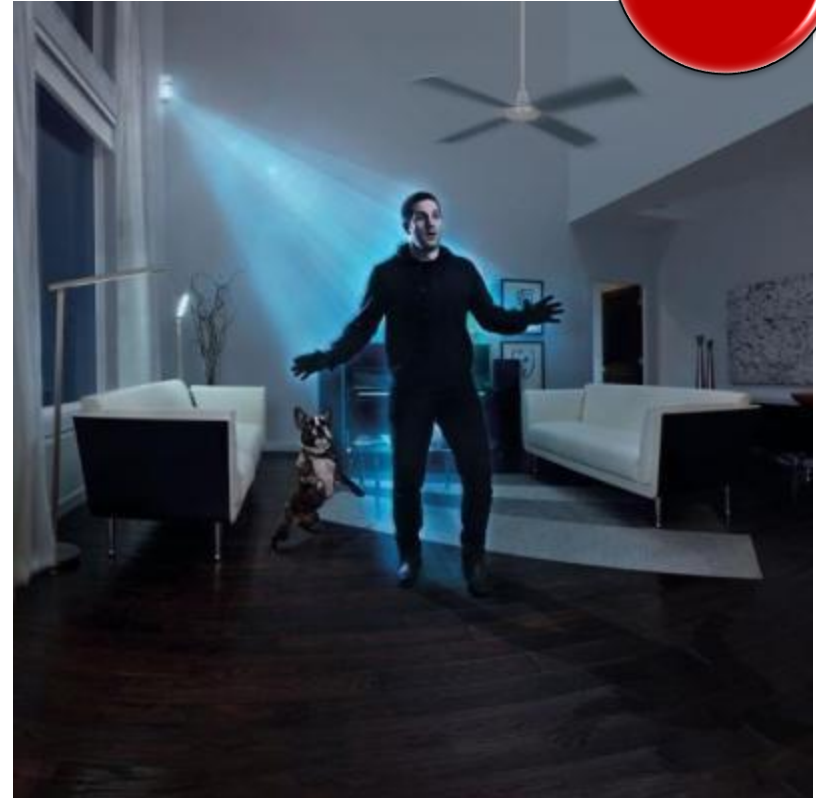
Commercial Series TriTech provides best in class performance at elevated room temperatures.



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Performance Cost

- How does Bosch achieve this cost and performance advantage:
- High quality optics+electronics
 - Advanced signal processing
 - Dynamic Temperature Compensation
 - Advanced microwave Doppler RADAR



Microwave Noise Adaptive
Processing

Performance Cost

→ How does Bosch achieve this cost and performance advantage:

- High quality optics+electronics
- Dynamic Temperature Compensation
- Advanced microwave Doppler RADAR
- Advanced signal processing
- Active Infrared Anti-mask
 - Bounce Back emitter
 - Through-the-Lens emitter



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Performance Cost

→ How does Bosch achieve this cost and performance advantage:

- High quality custom optics
- Dynamic Temperature Compensation
- Advanced microwave Doppler RADAR
- Advanced signal processing
- Active Infrared Anti-mask
 - Bounce Back emitter
 - Through-the-Lens emitter



EN50131-2-x Materials

Material number	Material
1	Matt black paper sheet
2	2 mm thick aluminium sheet
3	3 mm thick clear gloss acrylic sheet
4	White polystyrene foam sheet
5	Self adhesive clear vinyl sheet ^a
6	Colourless plastic skin, spray Polyurethane ^a
7	Clear gloss lacquer, brush applied ^a

^a Applied only from the front.

VdS 2312 Materials

Motion Detectors	VdS 2312en : 2010-12 (04)
<ul style="list-style-type: none"> - White and black cotton drapery - White and black soft wool drapery - White and black writing paper (matt) - 1 mm thick steel plate - 2 mm thick aluminium plate - 1 mm thick white and black cardboard - Polystyrene - White foamed polystyrene plate - White and black plastics - Glass - 3 mm thick transparent bright acrylic plate - Transparent plastic film <p>The dimensions of all materials is DIN A4. The distance between masking material and detector is then reduced in steps of 5 cm until the masking test is detected respectively signalled within 30 s and in a distance of at least 10 cm for all materials.</p> <p>In a second test the following masking materials are used:</p> <ul style="list-style-type: none"> - Plastic mass applied directly on the detector - Transparent self adhesive foil applied directly on the detector - Hair spray applied directly on the detector - Clear gloss lacquer applied directly on the detector - Spray bandage applied directly on the detector 	



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Performance Cost

→ How does Bosch achieve this cost and performance advantage:

- High quality custom optics
- Dynamic Temperature Compensation
- Advanced microwave Doppler RADAR
- Advanced signal processing
- Active Infrared Anti-mask
 - Bounce Back emitter
 - Through-the-Lens emitter

Manufacturer	Model	Anti-mask
Bosch	ISC-CDL1-WA15	97%
Bosch	ISC-CDL1-W15	NA





Performance Costs - False Alarms Example

Example for 1000 installed detectors

Benchmark	Number of false alarms per year	Labor costs to perform false alarm investigation	Site visits per year	Total Install. Costs per year
Bosch	0	€62	100	€0
R	1			€ 6,200
U	1			€ 6,200
H	1			€ 6,200

Assumption: 10% of installed detectors from competitors trigger false alarms

**Savings
€ 6,200**

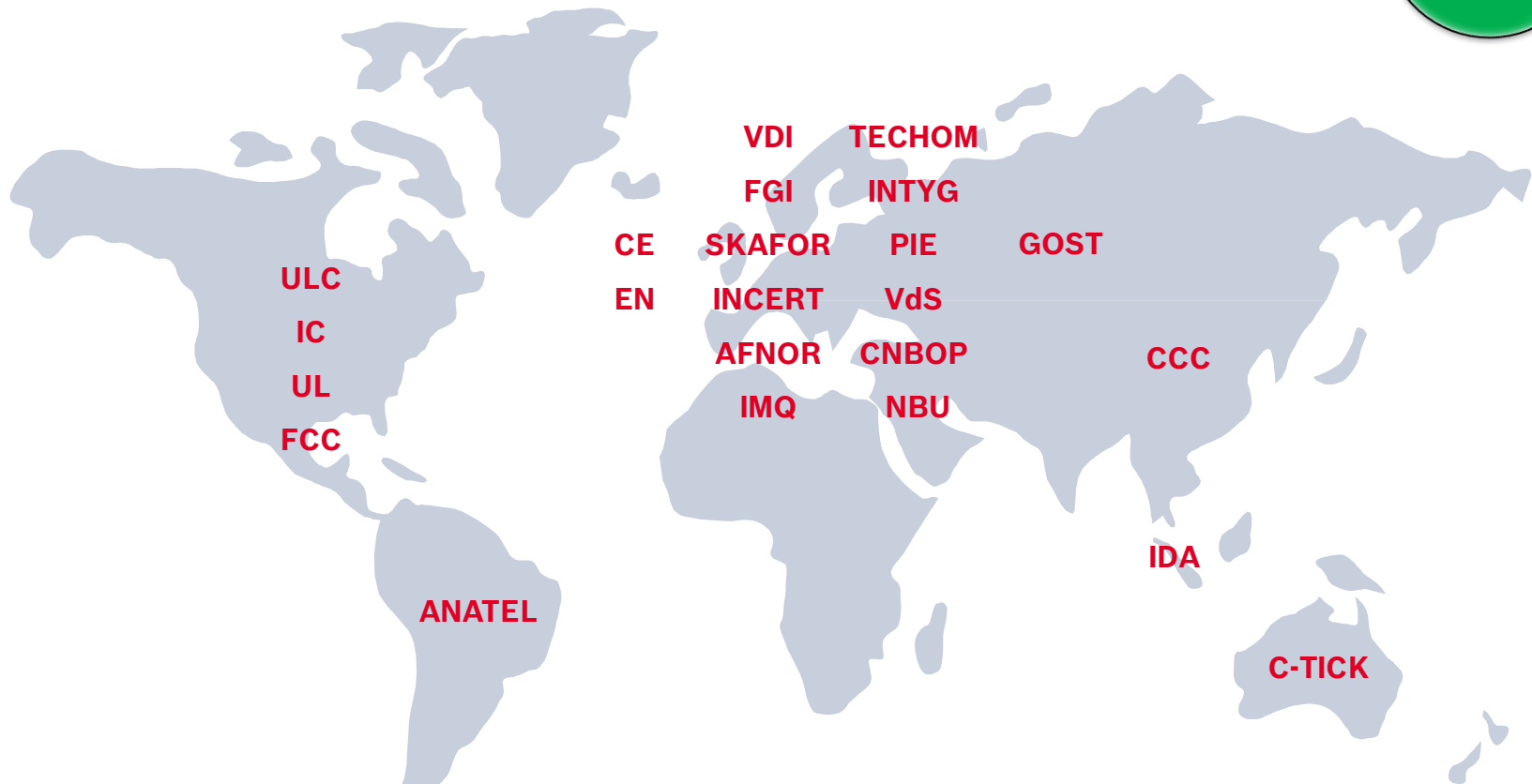
Bosch motion detectors provide improved immunity to false alarms, resulting in cost savings of € 6,200 per year



BOSCH



Maintenance Cost



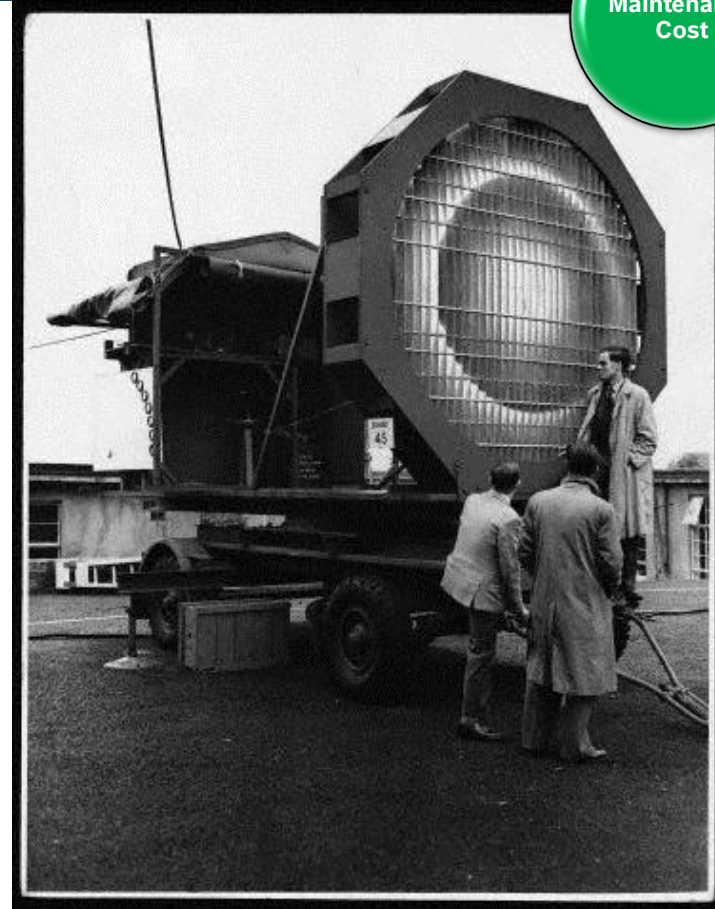
Bosch detectors are sold globally and designed to meet multiple regulatory standards. Competitors offer different models for each region.



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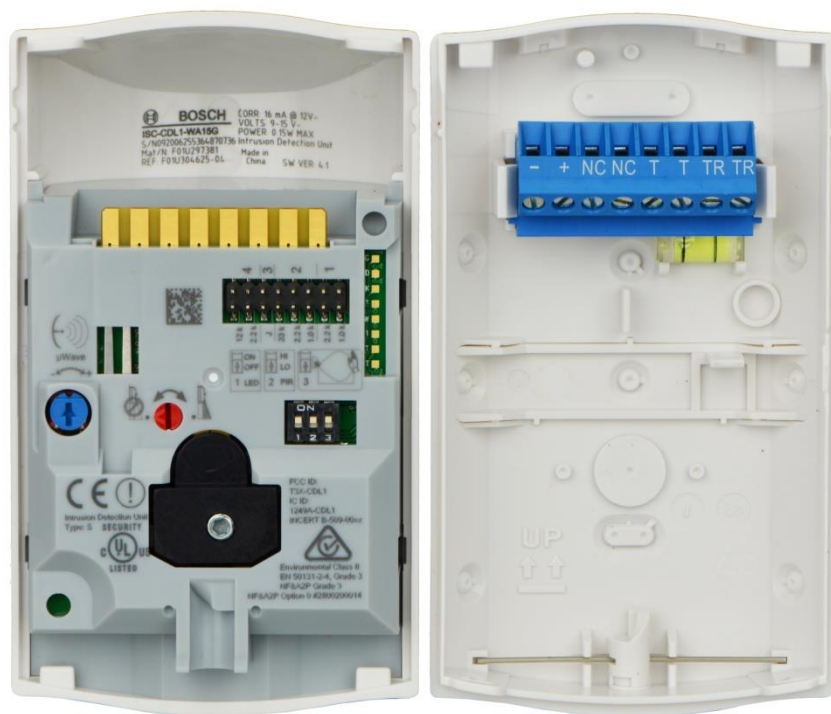
Maintenance Cost

- EN50131-2-2 and EN50131-2-4 Grades 2 and 3
- EN50130-4 Electromagnetic Compatibility Standard (June 2011 Version) requiring immunity to RF interference to up to 2.7 GHz at 10 V/m field strength.
- UL Canada requires immunity up to 1.0GHz, but at 20 V/m field strength.



Maintenance Cost

- Protective cover over electronics and optics reduces installer damage.
 - Electronics mounted to FRONT cover to prevent damage during mounting of BASE.
- Also prevents dust and insects from entering the detector and creating false alarms.
 - Some competitors now have similar covers, but with more and larger openings increasing risk.
- MTBF > 100 years





Maintenance Cost

Example for 1000 installed detectors

Benchmark	Warranty returns per year	Site visit to replace product	RMA processing cost	Total Maintenance costs per year
Bosch	2	€40	€20	€120
R	20			€1,200
U	20			€1,200
H	20			€1,200

Assumption:
 Competitors rate of return: 2.0%
 BOSCH rate of return: 0.2%

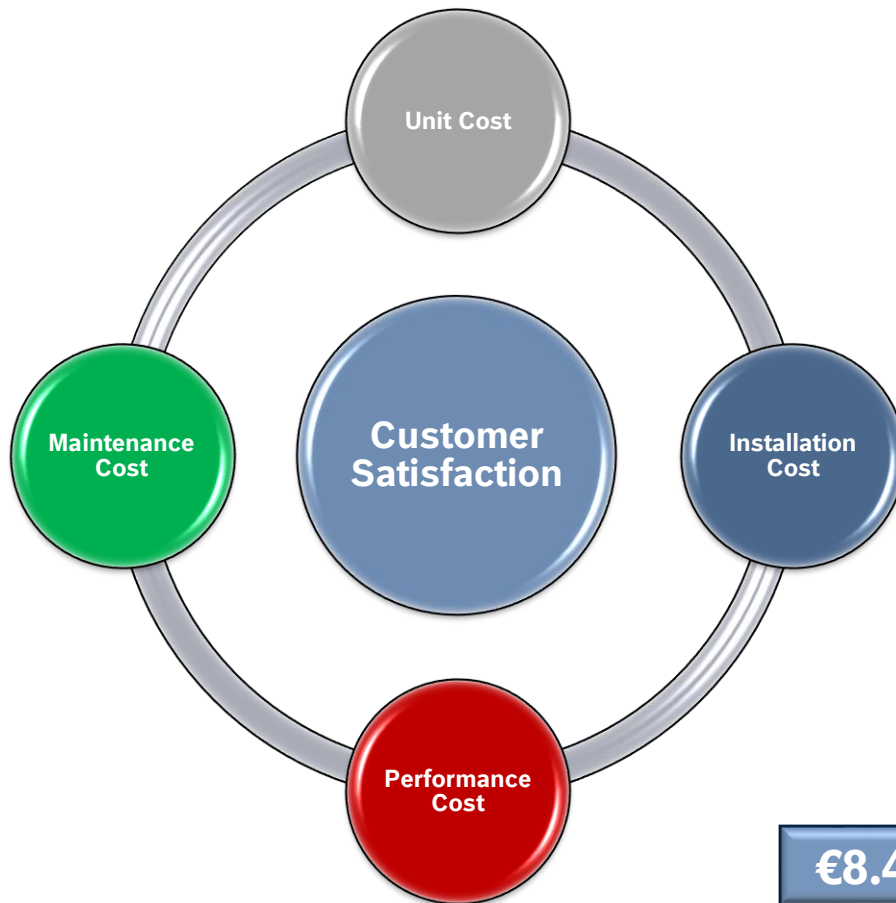
Savings
€1,080

Bosch motion detectors produce maintenance cost savings of € 1,200 per year



Commercial Series

Example for 1000 installed detectors



Unit
€ **xx**

Installation
€1,178

Performance
€6,200

Maintenance
€1,080

Total Savings
€8,458

€8.46 savings per installed detector!

Bosch detectors provide the lowest **Total Cost of Ownership**



