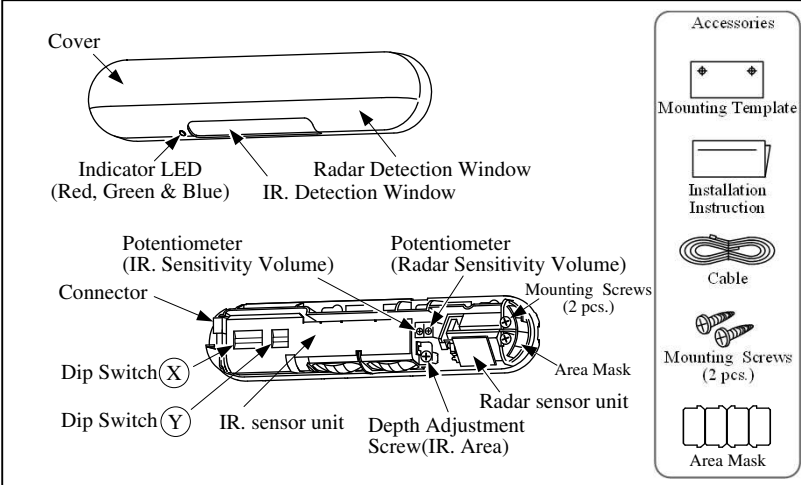
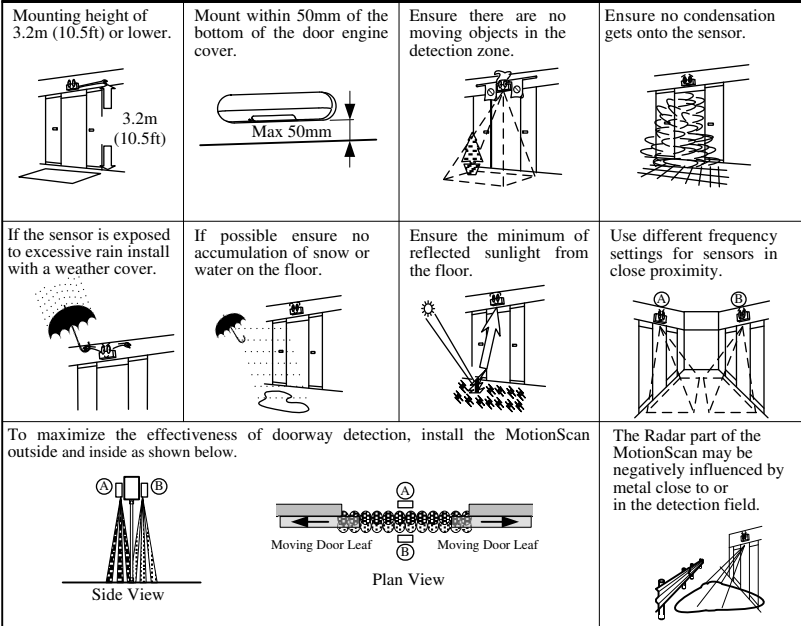


MotionScan User Manual (Original)

1. DESCRIPTION



4. MOUNTING PRECAUTIONS



6. MOUNTING & WIRING INFORMATION

WARNING Drilling may cause electric shock. Be careful of hidden wires inside the door engine cover.

- Attach the mounting template so that its bottom edge is flush with the bottom edge of the door engine cover.
- Drill mounting (3.5mm φ) and wiring (10mm φ) holes.
- Remove the sensor cover as illustrated. Lift the sensor from its cover.
- Attach the sensor with the mounting screws provided.

⑤-1 Wiring to a door controller that **can** test the sensor

Note EN16005 Set "Test input" dip switch setting (Y) 6 to "ON". Ref section 7, Dip Switch Settings.

⑤-2 Wiring to a door controller that **cannot** test the sensor

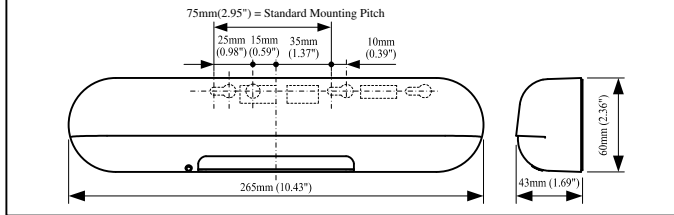
Note Set "Test input" dip switch setting (Y) 6 to "OFF". Ref section 7, Dip Switch Settings.

- House connectors in the space provided.
- Replace Cover.
- Removing the cover after installation
 - Push
 - Pull
 - Push
 - Pull

WARNING Disregarding this symbol may result in serious injury or death. **Note** Special attention is required when this symbol is shown.

CAUTION Disregarding this symbol may result in injury or damage to equipment. **EN16005** Setting required to conform with EN16005.

2. DIMENSIONS



3. LED INDICATORS

Green	Standby
Green blinking	Doorway Learning (When dip switch (Y) 5 is ON)
Blue	RADAR Detecting
Red	IR. Detecting / RADAR and IR. Detecting
Orange	Detection row "ROW1"/"ROW2" when doorway Learning is turned ON) is detecting door movement
Orange blinking (Fast)	Indicates a change of dip switch settings
Orange blinking (Slow)	Door Hold is turned ON (When dip switch Y (4) is ON)
Green/Red blinking (Fast)	Internal Sensor Error
Green/Red blinking (Slow)	Reflected infrared signal from the floor is very low

5. TECHNICAL SPECIFICATIONS

Common Specification	
Model Name	MotionScan
Installation Height	3.2[m] (10.5 [ft]) Max.
Supply Voltage	AC/DC 12 to 24 [V] ±10% 50/60Hz
Power Consumption	AC12V-2.5 [VA] (Max) AC24V-2.5 [VA] (Max) DC12V-150 [mA] (Max) DC24V-80 [mA] (Max)
Output	IR. Opto Relay Non Pole Voltage: 48 [VDC] Max. Current : 300 [mA] Max. (Resistance load)
	RADAR Relay DC50 [V] 0.1[A] Resistor Load
Test Input	6 [mA] Max. @ 24 [VDC]
Operating Temperature	-20 to +60 [Deg.C], (-4 to 140 Deg.F)
Operating humidity	Below 80%
IP Rate	IP54
Category	2, performance level D according to EN ISO 13849-1:2008
Weight	0.56 [lb.] (0.26 [kg])
Color	Black
Accessories	Cable, Mounting Screw 2pcs., Mounting Template, Installation Instruction
Specifications of Reflection Sensor	
Detection Method	Active Infrared Reflective
Output Holding Time	0.5 [seconds] App.
Response Time	0.1 ~ 0.2 [seconds]
Presence Timer	2, 30, 60 [seconds] or ∞
Specifications of Radar Sensor	
Detection Method	Doppler method: (moving body detection)
Transmit frequency	24.150 - 24.250 [GHz]
Output Holding Time	1.5 [seconds] App.
Response Time	0.1 ~ 0.2 [seconds]

Note: Specification may be changed without prior notice.

7. DIP SWITCH SETTINGS

Dip Switch (X)

Dip Switch (Y)

☆ = Default Setting

Function	Dip Switch (X)	Description	Possible Setting Options
IR. Presence Timer	☆ 30s 1 2	The sensor will detect a stationary object for the preset presence timer setting on the inner 3 rows. EN16005 To comply with EN16005 set the presence timer to 30s or more	2s, ☆ 30s, 60s, ∞
IR. Frequency	☆ A 3 4	When two or more sensors are installed in close proximity to each other select different frequency settings for each sensor to prevent cross interference.	☆ A, B, C, D
Monitor Mode	☆ Normal 5	Set to snow in instances where false door activations can result from blowing snow, leaves or rubbish in the door close area.	☆ Normal, Snow
Safety Relay Output	☆ N.C. 6	Refer to [11.Timing Chart of events] for full details on Safety Output	N.O., ☆ N.C.
Reflection Diagnostics	☆ Normal 7	A low reflected infrared signal is indicated by a slow flashing Red/Green LED. To ignore this low reflection error state, set this dip switch to "Low Reflection"(ON). EN16005 To comply with EN16005 set to "Normal"	☆ Normal, Low Ref.
Function	Dip Switch (Y)	Description	Possible Setting Options
Direction Detection RADAR	☆ ON 1	When set to ON, pedestrians moving away from the sensor will not be detected.	OFF, ☆ ON
Activation Relay Output	☆ N.O. 2	Refer to [11.Timing Chart of events] for full details on Activation Output	☆ N.O., N.C.
Activation Relay Output Configuration	☆ OFF 3	Choose how relay output is configured.	☆ OFF, ON, RADAR + IR rows 2+3, RADAR
Door Hold	☆ Auto 4	Switch to OPEN to hold the door in the open position CAUTION	☆ Auto, Open
Doorway Learn	☆ OFF 5	Doorway Learn allows the 1 st row of detection to be focused inside the door close area without the detecting door movement. Note When Doorway Learn is turned ON, the sensitivity level of the inner row of detection is only at maximum when the outer rows of detection are activated	☆ OFF, ON
Test Input Setting from Door Controller	☆ ON 6	When connected to a door controller without a TEST input, set to "OFF". When connected to a door controller with a TEST input, set to "ON". Refer to [11.Timing Chart of events]. EN16005 Set to "ON" to comply with EN16005	OFF, ☆ ON

8. DETECTION AREA WIDTH AND DEPTH ADJUSTMENT



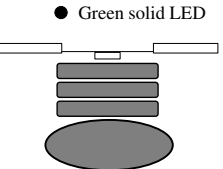
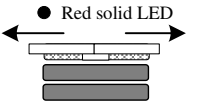
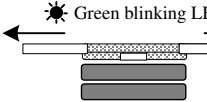
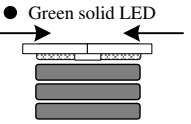
Detection Area Depth Adjustment: IR. (Inner 3 Rows)

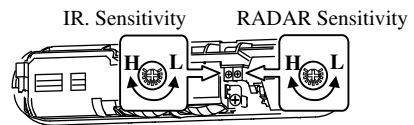
Detection Area Width Adjustment: IR. (Inner 3 Rows)

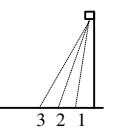
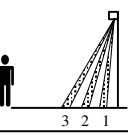
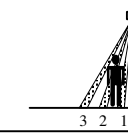
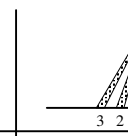











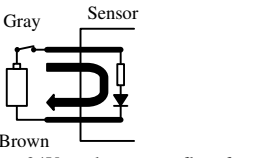
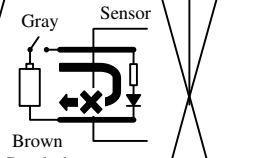
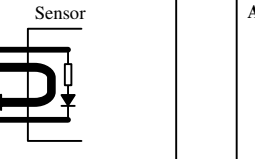
Detection Area Depth Adjustment: RADAR (Outer)

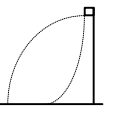
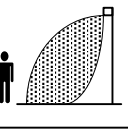
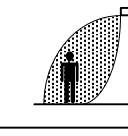
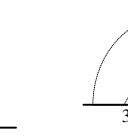
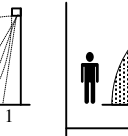




















CAUTION The MotionScan sensor complies with EN16005 safety standards on the side of the door that it is installed on only.
EN16005 To ensure conformance with EN16005 check that the detection area of row 1 is set directly in front of the moving door using an EN16005 test box. If "Doorway Learn" is turned ON, verify that row 2 is set directly in front of the moving door using an EN16005 test box.

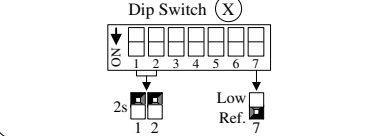
CAUTION The above illustrated detection areas represent the actual position of the infrared and radar beams. The actual detection area observed will vary depending on the sensor installation environment, objects been detected and sensor settings. Please ensure that the detection area is set to conform to EN16005.




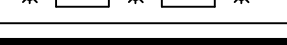
9. APPLYING POWER AND THE "DOORWAY LEARN" SETTING			
"Doorway Learn" is OFF <i>Ref section 7, Dip Switch Settings.</i> 	"Doorway Learn" is ON <i>Ref section 7, Dip Switch Settings.</i> 		
Upon power ON, the solid green LED turns on indicating that the sensor is in standby mode and ready to detect.	Upon power ON, the Red LED indicates a door open relay output to begin the doorway learn process.	Green LED blinks for 37s as the "door learn" process is carried out. Door opens/closes.	Door learn process complete, sensor in standby mode.
			
Presence Detection: It takes 10s after sensor power up for presence detection to be initiated on all rows of detection. If before 10s has elapsed someone walks into the detection area it will take about 5s after the person leaves the detection zone for presence detection to be functional.	Presence Detection: During the "Doorway Learn" process the outer 3 rows of detection on the MotionScan sensor switch from motion detection to presence detection 10s after power ON. The inner "door learn" row of detection will switch from motion to presence detection after the "doorway learn" process is carried out.		
	"Doorway Learn" Failure & Recovery: If a person enters the detection area during the "doorway learn" process it may not be successfully completed. In this case the sensor will carry out the doorway learn process over three door activations by a person in order to build an accurate image of the door open and door close position.		
	Note When Doorway Learn is turned ON, the sensitivity level of the inner row of detection is only at maximum when the outer rows of detection are activated.		

10. VERIFICATION OF OPERATION	
After installation is completed "walk test" the sensor detection area. If the detection area is not as expected adjust the detection area as referred to in section 8. If the detection area is still not as expected then the sensor sensitivity can be increased by turning the potentiometer clockwise. When the sensor detects even though there is nothing in the detection area the sensor sensitivity can be decreased by turning the potentiometer in the anti-clockwise direction.	


11. TIMING CHART OF EVENTS					
Safety Output / Test Input					
Dip Switch (X) Safety Output					
N.O.					
N.C.					
Dip Switch (Y) Test Input setting	OFF	ON			
T1 : 10±1 [mSec] App T2 : 11±1 [mSec] App	POWER OFF	NON-DETECTION	DETECTION	NON-DETECTION	DETECTION as response to TEST
		TEST	NON-TEST	TEST	NON-TEST
		NON-TEST	TEST	NON-TEST	TEST
					
		Supplying DC12 to 24V, make current flow from Gray to Brown.	Break the current flow on test state.		

11. TIMING CHART OF EVENTS (Continued)					
Activation Output					
Dip Switch (Y) Activation Output					
N.O.					
N.C.					
Dip Switch (Y) -3 ON	POWER OFF	NON-DETECTION	DETECTION	POWER OFF	NON-DETECTION
Dip Switch (Y) -3 OFF	POWER OFF	NON-DETECTION	DETECTION	POWER OFF	NON-DETECTION
N.O.					
N.C.					

12. DOOR MAINTENANCE WORK	
When carrying out door maintenance work with power applied to the sensor on door controllers that are wired to "test" the sensor ensure to set the dip switches as below.	
Note Remember to return the dip switch settings to their original state once door maintenance work has been carried out.	
	
Refer to [7.Dip Switch Settings].	


13. SELF DIAGNOSTICS ERRORS		
Technical problems with the MotionScan sensor are indicated by a flashing Green/Red LED. The frequency of flashing indicates the type of problem as explained below.		
Flash Frequency	LED	Cause
Fast	Green  Red 	Please replace the sensor.
Slow	Green  Red 	Confirm that the sensitivity potentiometer is set to maximum and re-power the sensor. If the error persists, set Dip Switch (X) 7 to "Low Reflection".

14. TROUBLESHOOTING			
Problem	LED Status	Possible Cause	Solution
Door does not open when a person enters the detection area.	OFF	Sensor Connector not connected correctly.	Tighten or reconnect the connector.
		Incorrect power supply voltage.	Apply proper voltage to the sensor. (AC/DC 12-24V).
		Incorrect sensor wiring.	Double check sensor wiring.
Door opens and closes for no apparent reason (Ghosting).	Door Opens RED or BLUE Door Closes GREEN	Object moving in the detection area.	Remove the moving object from detection area.
		Sensitivity too high for the installation environment.	Reduce the sensor sensitivity setting.
		Dust, frost or water droplet on the sensor lens.	Wipe the sensor lens clean and install a weather cover if necessary.
		Detection area overlaps with that of another sensor.	Ensure different frequency setting for each sensor, and adjust to overlap the radar area using the angle and volume.
		Detection of falling snow, insects, leaves etc.	Turn monitor mode Dip switch (X) 5 to "snow".
		When Door opens or closes, LED ORANGE.	ORANGE
Door opens and remains in the open position.	RED	Detection area changed, while infinity presence timer setting is in use.	Re-power the sensor or change the presence timer settings to 30 or 60 seconds.
		Incorrect sensor wiring.	Double check sensor wiring.
	BLUE	Reflected signal saturation.	Remove highly reflective objects from the detection area, or lower the sensor sensitivity setting.
		Moving objects in the radar area.	Eliminate moving objects.
	GREEN/RED FAST FLASH	Internal sensor error.	Replace the sensor.
		Reflection of the transmitted infrared signal from the floor is too low.	Increase sensor sensitivity or change the "Reflection Diagnostics" Dip switch (X) 7 from "Normal" to "Low Ref".
ORANGE blinking (Slow)	Door Hold (Dip switch (Y) 4 set to Open)	Turn "Door Hold" Dip switch (Y) 4 to Auto.	

15. MotionScan EC DECLARATION OF CONFORMITY		
Description of Product: MotionScan Combined motion and presence detection sensor for the activation and safety of automatic doors. Technology used is Active Infrared Technology and Doppler method: (moving body detection) Technology		
Directives Fulfilled: DIRECTIVE 2006/42/EC DIN 18650-1:2010, Chapter 5.7.4 EN 12978:2003+A1:2009 EN ISO 13849-1:2015 EN 16005:2012+AC: 2015, Chapter 4.6.8 and Annex C RE-directive 2014/53/EU EC type examination		
Powered pedestrian doors Part 1: Product requirements chapter 5.7.4 Industrial, commercial and garage doors and gates - safety devices for power operated doors and gates - Requirements and test methods. Safety of machinery - Safety-related parts of control systems.	44 205 13 095716	
Above EC Type Directives Certified by: TÜV NORD CERT GmbH Langemarckstrasse 20 45141 Essen Germany	Harmonized Standards Used: EN ISO 13849-1:2015	Other Technical Standards Used: DIN 18650-1:2010, Chapter 5.7.4 EN 16005:2012+AC: 2015, Chapter 4.6.8 and Annex C
Location of Declaration  Pepperl+Fuchs SE, Lilienthalstraße 200 68307 Mannheim-Germany www.pepperl-fuchs.com	Declaration made by Hinrik Weber Director Innovation Unit Opto	Date May 2022

< Disclaimer > The manufacturer cannot be held responsible for below.

- Misinterpretation of the installation instructions, miss connection, negligence, sensor modification and inappropriate installation.
- Damage caused by inappropriate transportation.
- Accidents or damages caused by fire, pollution, abnormal voltage, earthquake, thunderstorm, wind, floods and other acts of providence.
- Losses of business profits, business interruptions, business information losses and other financial losses caused by using the sensor or malfunction of the sensor.
- Amount of compensation beyond selling price in all cases.

	World Headquarters Pepperl+Fuchs SE, Lilienthalstraße 200 68307 Mannheim-Germany E-Mail: FA-info@de.pepperl-fuchs.com	USA Headquarters Pepperl+Fuchs Inc. Twinsburg, USA E-Mail: FA-info@us.pepperl-fuchs.com	Asia Pacific Headquarters Pepperl+Fuchs Pte Ltd. Singapore 139942 E-Mail: fa-info@sg.pepperl-fuchs.com
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MP-10223-A TDOCT-4905A_ENG	May 2022
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www.pepperl-fuchs.com