

1"





PrimeTec User Manual

Combined microwave (motion)/active infrared (safety) sensor for activating and protecting automatic pedestrian sliding doors



2 Safety Precautions

2.1 General Safety

Warning: failure to follow these safety precautions may cause damage to sensor or objects, serious personal injury, or death.

-This product is designed to be mounted on the header of an automatic sliding or telescopic door.

- -Do not use this product other than for its specified application.
- -Observe all local, national, and international door safety standards, codes, and laws.
- -Only trained and qualified personnel may install and initialize the sensor.
- -Only authorized Bircher Reglomat personnel may perform hardware/software changes or repairs to the product.
- -The unit should only be operated from a safety extra low voltage (SELV) system with safe electrical separation.
- -Always consider the safety functions of your applications as a whole, never just in relation to one individual section of the system.
- -The installer is responsible for testing the system to ensure it meets all applicable safety standards (e.g. ANSI 156.10).
- -Never touch any electronic components or lenses.

2.2 Installation Safety

- -Follow all steps outlined in this manual in order for proper installation of the product.
- -Stop all pedestrian traffic through the door before installing sensor.
- -Ensure there is no pedestrian traffic through the door until sensor is installed and tested for compliance with all applicable safety standards (e.g. ANSI 156.10).
- -Verify proper installation of door equipment before installing sensor.
- -Shut off all power before attempting any wiring procedures.
- -Always use wire terminals to terminate stranded wire ends.
- -Check placement of wiring to ensure moving parts are not impeded by wires.
- -Make sure wiring is correct before applying power to the sensor to avoid damage to equipment.
- -Ensure door & header coverplate are properly grounded to protective earth (PE).
- -Ensure (e.g. by walk testing) that installation is in compliance with all applicable standards (e.g. ANSI 156.10) after completion of installation. -If the sensor sustains damages (e.g falls), replace it with a new unit.

-If a satisfactory solution cannot be achieved after troubleshooting a problem, please call Bircher Reglomat at 800-252-1272 or visit our website at www.bircherreglomat.com.

DO NOT LEAVE ANY PROBLEMS UNRESOLVED! DO NOT SACRIFICE SAFETY FOR ANY REASON!

3 Mounting the Sensor

3.1 Special Considerations



Ensure door header coverplate is always in place and held tightly by screws.



Mount the PrimeTec rain cover, (PTCR) if sensor is exposed to rain.



Obstruction can affect performace. Ensure safety & motion sensors have unobstructed views.



Mount sensor away from fluorescent or HID light sources.

3.2 Removing the Cover



Grasp cover firmly and insert one finger beneath the mounting screw holes on the sensor baseplate. Pull the sensor toward you to remove the cover.



To remove cover once the sensor is mounted on the door frame, grasp the cover firmly on either side and pull toward you.

Page 2

3.3 Wiring the Sensor

New installation using gray cable with plug



Insert the female plug on the gray cable into the male receptacle on the sensor. Ensure the plug is fully inserted.

Proper insertion of the cable connector into receptacle



The cable will only fit into the receptacle if the grooves are lined up properly. Do not force the connector into the receptacle or damage could result.

Retrofit installation using detachable screw terminal



Shown above is the 4-wire retrofit wiring scenario using the **detachable** screw terminal. Insert the proper wires into terminal (based on the wiring diagram on page 4) and tighten the screws with a 1/8" flathead screwdriver.

Multiply the cable bushing to hold it firmly in place. Multiply to hold it firmly in place.

3.4 Routing the Cable (for retrofit installations with existing cable hole)







Route the cable in the cable channels so it is flush against the back of the sensor. Several options are shown- select the best option for your installation.

3.5 Positioning & Attaching the Sensor





- Position the removable self-adhesive mounting template on the door header frame in the middle of the opening (see illustrations) Ensure template is level on the door header frame and the bottom of the template is aligned with the bottom of the door header frame (-1" / + 3" tolerance).
- Drill hole for cable in marked location using 1/4" drill bit for cable only or 1/2" for cable + connector.
- Using an electric screwdriver, insert self-tapping screws in marked location. Torque rating is 3.7 ft-lb (5 Nm).
- 4. Remove the mounting template.
- 5. Attach sensor to screws and tighten to hold the sensor firmly on the door header frame.

4.1 4-Wire Connection: Standard Option (Combined motion & safety outputs)



4.2 6-Wire Connection: Recommended Option (Enhanced performace through separate motion & safety outputs)

Sensor must be programmed for this wiring configuration.

Press and hold the **black** value button for **8 seconds** to separate motion & safety outputs. For more details, please see section 8.

This option may only be used with the included gray cable.



4.3 8-Wire Connection: Best Option (Additional safety through monitoring)

Monitoring function is self-configurating and will be active as soon as unit is powered on if the following wiring is used. May not be available for all door operators.

Sensor must be programmed for this wiring configuration.

Press and hold the **black** value button for **8 seconds** to separate motion & safety outputs. For more details, please see section 8.

This option may only be used with the included gray cable.



5 Initialization

REMOVE all foreign OBJECTS that are not part of the normal door system environment BEFORE powering on the sensor.

A Make sure no people or moving objects are in the door area, otherwise correct startup will not be possible.

The alternate flashing LED's indicate the initialization (teach-in) of the sensor. (Duration 10 - 15 sec.) The LED's will then remain continuously lit for 10 more seconds. Please see below for LCD screen readouts.

The door system is now operational at this point.

The safety/motion LED's will only illuminate when a detection occurs. If using combined outputs (standard), the green LED will illuminate together with the red LED when a safety detection occurs.

6 Safety Curtain Adjustment

6.1 Adjusting the Safety Curtain Width

The width of the safety curtain can be adjusted by clicking in the plastic masking cover in front of the sensor lens.

Safety Curtain Dimensions

Sensor without masking cover: full pattern size (factory setting) Field width: approx. 6'6" (2 m) at 7' (2.1 m) mounting height Field depth: approx 8" (.2 m) for 2 rows Rule of thumb: field width is approximately equal to mounting height.

Possible safety curtain width settings

The field size varies depending on which sections of the lens are masked by the click-in covers.



Adjusting the safety curtain width using click-in masking covers



Location of safety curtain masking covers inside sensor cover



Insert masking cover in slot below lens



Click into place



Location of slot below lens



Green LED

Screen after

initialization

(Motion)

Red LED

(Safety)

Screen during

initialization

6.2 Adjusting the Safety Curtain Distance from the Door





The built-in self-monitoring could malfunction or indicate an error if the safety curtain is angled too far away from the door panel. For troubleshooting, please see section 9.



For assistance, use the measuring guide on the front of the manual to determine this distance.

Hold the guide no more than 10" (25 cm) off the ground and move it from the door opening into the safety field until the red LED illuminates.



1° of adjustment (1/8 or 45° turn with a screwdriver), is approximately equal to 1" of curtain movement on the floor. Factory setting = 2°

7 Motion Sensor Adjustment

7.1 Changing the Motion Field Pattern

The motion field pattern can be changed by rotating the microwave module.







Narrow field microwave module poition

7.2 Adjusting the Motion Field Size to Meet Standard Requirements

In order to meet ANSI standard 156.10, the sensor's motion field pattern must cover the ANSI-specified field dimensions (designated by x's in the drawing).

Please refer to the current published ANSI standard for details.



7.3 Motion Field Dimensions



Minimum Field Size: W x D = 20" x 10" (0.5 x 0.25 m) Maximum Field Size: W x D = 13' x 6' 6" (4 x 2 m) Measured at 30° angle



Minimum Field Size: W x D = 6" x 30" (0.16 x 0.8 m) Maximum Field Size: W x D = 6' 6" x 13' (2 x 4 m) Measured at 30° angle

Rule of thumb: The **width:depth** ratio of the motion field is approximately **2:1** (standard field) or 1:2 (narrow field) Field size changes with mounting height.

7.4 Placement of Motion Field Inclination -5° to 90° in 5° increments Factory setting: 20° (5 clicks up from end) Factor





Pivot -20° to 20° in 5° increments Factory setting: 0°



8 Configuration (Operator Buttons)



8.2 Motion Sensor Settings

Motion Functions	0	Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Field Size/Sensitivity		1		1 - 5	1 = Smallest field 4 = Standard field* 5 = Largest field
Direction Recognition		2	(1) 2. 2	1, 2	1 = Off (traffic both ways activates sensor) 2 = Towards sensor only*
Cross Traffic Optimization (CTO)		4	[] [4].	1, 2	 1 = Off* 2 = Masking of cross traffic (to reduce unwanted openings from people walking by the door)
Slow Motion Detection (SMD)		5	[① 5. {	1, 2	 1 = Off* 2 = On (keeps door open after initial activation for people hesitating/pausing before reaching the safety curtain)
Interference Filter		6	[① 6.	1, 2	<pre>1 = Filter off* 2 = Filter on for EM interference, fluorescent tubes, door movement, etc (section 9.1)</pre>
Output Logic		7		1, 2	1 = NO* 2 = NC

8.3 Safety Curtain Settings

Safety Functions	2	Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Sensitivity	- Strangener	1		2, 3	2 = Regular sensitivity* 3 = Snow mode
Teach-In Time The amount of time until the sensor recognizes a motionless person/object in the safety curtain field as part of the background		2		1 - 5	1 = 10 seconds 2 = 30 seconds* 3 = 60 seconds 4 = 180 seconds 5 = 15 minutes
Output Logic		3		1, 2	1 = NO* 2 = NC →

8.4 General Settings

General Settings	12	Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Combined/separate outputs		2	LCD after using shortcut:	1, 2	 1 = 4-wire configuration* (combined outputs for motion & safety) 2 = 6-wire configuration (separate outputs for motion & safety) Shortcut: Press & hold black button for 8 seconds to separate motion & safety outputs
Frequency of safety curtain Can be changed to prevent cross-talk from two sensors on the same door (e.g. very wide door)	\sim	3		1, 2	1 = Frequency 1* 2 = Frequency 2

Please note: some settings may not meet all applicaple standards (eg. ANSI 156.10). Please see page 2 for more details.

Ensure (e.g. by walk testing) that installation is in compliance with all applicable standards (e.g. ANSI 156.10) after completion of installation.

8.5 Restarting the Sensor

To restart the sensor, press & hold the **red** button for **1 second**. This is equivalent to recycling power (powering down the sensor and up again).

8.6 Factory Reset

To reset the sensor to factory defaults settings, press & hold both red & black buttons simultaneously for 8 seconds.

9 Troubleshooting

9.1 Remedying False Tripping

Red LED (Safety)	Green LED (Motion)	Fault	R	emedy
Off	On	Door reverses while closing	 Ensure door header coverplate Set angle of microwave furthe Reduce microwave field size/s 	· · · · ·
Off	On	Opening signal without apparent external influence	 Make sure there are no moving the vicinity of the sensor. Mount sensor away from fluor Direct microwave module awa sensors in the area (section 7.4) Activate filter (section 8.2). 	rescent or HID light sources. Ny from other microwave
On	On ¹ ¹ If using separate safety & motion outputs, only red indicator LED will be illuminated.	Door reverses while closing	 Ensure door header coverplate Move door manually. If sensor sees door: Set angle of safety curtain further away from door panel (section 6.2). The built-in self-monitoring could malfunction or indicate an error if the safety curtain is angled too far away from the door panel. 	 is in place and held tightly by screws. If sensor does not see door but problem persists (ie. experien- cing EM disturbance): Reduce sensitivity of the IR safety curtain (snow mode) (section 8.3). Use separate power supply for sensor & door operator. Ensure it meets minimum sensor voltage requirement of 12V. Use recommended 6-wire wiring with separate motion & safety signals (section 4.2).
On	On ¹ ¹ If using separate safety & motion outputs, only red indicator LED will be illuminated.	Safety detection without apparent external influence	 Mount sensor away from fluor Avoid puddles of water on the Avoid interference from other a different frequency setting (s Use reduced sensitivity (snow Use separate power supply for Make sure it meets minimum s of 12V. Use recommended 6-wire wiri safety signals (section 4.2). 	ground. IR sensors by using section 8.4). mode) (section 8.3). r sensor & door operator. sensor voltage requirement
Off	Off	Door stays open	1. Change output logic of safety	or motion output (NO/NC) (section 8).

If a satisfactory solution cannot be achieved after troubleshooting a problem, please call Bircher Reglomat at 800-252-1272 or visit our website at www.bircherreglomat.com.

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9.2 Error Messages

Red LED (Safety)	Green LED (Motion)	LCD	Fault	Remedy
Flashing	Off	E (1)	1: Self test (RAM/ROM) 2: Watchdog	 Power down & repower sensor or restart sensor by pressing & holding red button for 1 second. If sensor displays same error or does not start, exchange sensor.
Flashing	Off	E [®] E [®] 005 006	5: Safety curtain fault 6: Safety output fault	 Power down & repower sensor or restart sensor by pressing & holding red button for 1 second. Clean safety curtain window on unit cover. Remove safety curtain masking covers. If sensor displays same error or does not start, exchange sensor.

10 Common Door Operator Wiring Diagrams

10.1 Besam UniSlide

Sensor must be programmed for this wiring configuration.



10.2 Door Controls DC One



Sensor must be programmed for this wiring configuration.

Press and hold the **black** value button for **8 seconds** to separate motion & safety outputs. For more details, please see section 8.



10.3 Dorma ESA-II

Sensor must be programmed for this wiring configuration.



10.4 Horton C2150

Sensor must be programmed for this wiring configuration.

Press and hold the **black** value button for **8 seconds** to separate motion & safety outputs. For more details, please see section 8.



10.5 Record Series 5100

Sensor must be programmed for this wiring configuration.



10.6 Stanley MC 521

Sensor must be programmed for this wiring configuration.

Press and hold the **black** value button for **8 seconds** to separate motion & safety outputs. For more details, please see section 8.

Connector TB4: Combined motion/safety outputs

Connector TB3: Separate motion/safety outputs

12Vac 12Vac	01 02	Alternatively black inside and outside PrimeTecs Alternatively red inside and outside PrimeTecs		o 1 o 2	
Common	o 3	White inside PrimeTec		03	
Inside sensor	o 4	Green inside PrimeTec		o 4	
12Vac	o 5	Black inside and outside PrimeTecs		05	
12Vac	o 6	Red inside and outside PrimeTecs		06	
Common	o 7	White outside PrimeTec	Common	o 7	Brown inside and outside PrimeTecs
Outside sensor	08	Green outside PrimeTec	Holding beam	o 8	Blue inside and outside PrimeTecs
	o 9			o 9	
	o 10			o 10	

10.7 Tormax iMotion

A Sensor must be programmed for this wiring configuration.



10.8 Additional Door Operator Wiring Diagrams

Please visit www.bircherreglomat.com for additional door operator wiring digrams.

11 FCC Approval

This device complies with Part 15 of the FCC Rules and with RSS-210 of Industry Canada.

Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occurr in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Warning: Changes or modifications to this equipment not expresssly approved by Bircher Reglomat may void the FCC authorization to operate this equipment.

12 Technical Data

Specification	Value
Motion sensor technology	Microwave double field module, 24.125 GHz
Output (motion/combined)	Solid state relay: 60 V DC / 42.5 V AC, 100 mA
Safety sensor technology	Active infrared (wavelength: 880 nm)
Number of IR Spots	24 (2 x 12)
IR spot dimensions	1 .2" x 1.2" (3 cm x 3 cm) at 7' (2.1 m) mounting height
Safety curtain angle settings	Continuously adjustable from -5° to 7°
Response time (safety)	< 200 ms
Output (safety)	Optocoupler (50 VDC, 50mA)
Mounting height	6' to 13' (1.8 m to 4 m)
Electrical power supply	10 - 28 VAC (45 - 65 Hz) 11.5 - 36 VDC
Power consumption	< 4 watts ≤ 150 mA
Making current	≤ 800 mA
Protection class	Suitable for use acc. to NEMA 3 (IP54)
EMC/RTTE	Acc. to EMC and RTTE directives (see below)
Operating temperature	- 4° to 140° F (- 20° to 60° C)
Dimensions	L x W x D = 10" x 2.3" x 2" (260 x 60 x 48.5 mm)
Weight	8.8 ounces (250 g)
Service lifetime	20 years
Product designation	PrimeTec B ES/01 bk

13 Optional Accessories



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Rain Cover PTCR For areas exposed to rain

Ceiling Mount PTCM



Recessed Ceiling Mount PTIS (white shown also available in black)

Circular Line Adapter PTCA For mounting on revolving doors

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PrimeScan Sensor PrimeScan B ES/01 bk For sidelite protection

14 Declaration of Conformity

Manufacturer: Importer:

Directives observed: Standards taken into account:

FCC: IC: Important note: UXS2 6902A-UXS2 Bircher Reglomat reserves the right to change any information in this document without notice. For the latest version, please visit www.bircherreglomat.com or call 800-252-1272 to request a copy.

EN 61000-6-1, EN 61000-6-2, EN 61000-6-3, EN 61000-6-4, EN 12978:2003+A1:2009, EN ISO 13849-1:2008, Cat. 2/PL d (safety curtain), 1997/BS7036-1 & BS7036-2

2006/42/EC, R&TTE directive 1999/5/EC, EMV-directive 004/108/EC





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