

1"



This product meets or exceeds ANSI standard 156.10 as independently tested by TÜV Rheinland North America

BIRCHER

Reglomat

2"

PrimeTec User Manual

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

3"

Marking for safety curtain adjustment (See page 6)

1 Introduction

1.1 Box Contents

The box contains the following items:

- A** PrimeTec sensor
- B** Sensor cover
- C** 10' (3 m) 8-wire electrical cable to connect sensor to door operator
- D** Self-adhesive mounting template
- E** Click-in safety curtain masking covers (2)
- F** Self-tapping mounting screws (2)
- G** Instruction manual

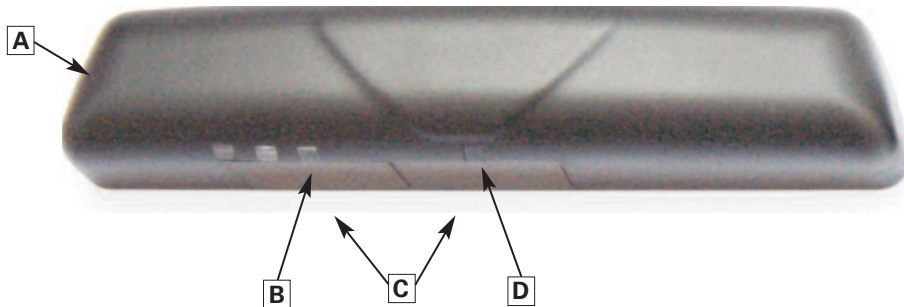
Tools required for installation:

- Ladder
- Tape measure
- Level
- Wire cutter
- 4 gauge (5 mm dia.) wire stripper for cable sleeve
- 26 gauge (0.14 mm²) wire stripper for single wires
- Phillips head screwdriver (size #1)
- Flathead screwdriver 1/8" (#1/ 3.6 mm)
- Electric drill with 1/2" (12 mm) drill bit
- Electric screwdriver with phillips head (size #2)

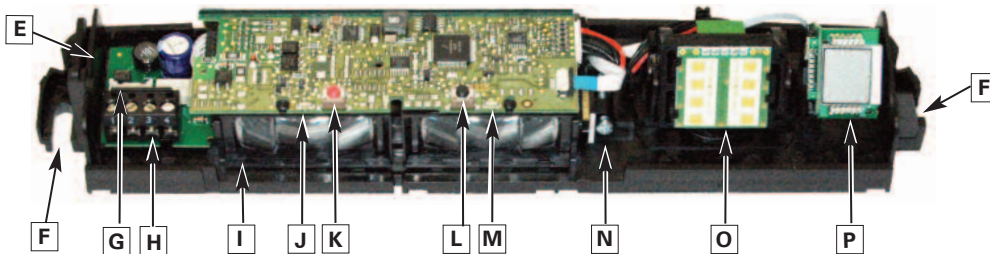


3"

1.2 Parts of the Sensor



- A** Cover
- B** Safety sensor indicator LED window
- C** Safety curtain window
- D** Motion sensor indicator LED window



- E** Cable bushing
- F** Mounting screw holes (2x)
- G** Cable connector (for new installations)
- H** Screw terminals (for retrofit installations)
- I** Active infrared safety curtain lens (safety sensor)
- J** Safety sensor indicator LED (red)
- K** Red button (function)
- L** Black button (value)
- M** Motion sensor indicator LED (green)
- N** Safety curtain adjustment screw
- O** Microwave module (motion sensor)
- P** LCD display

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.

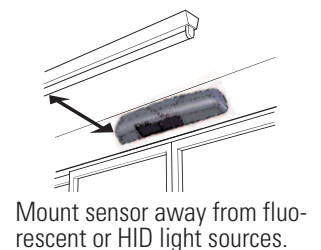
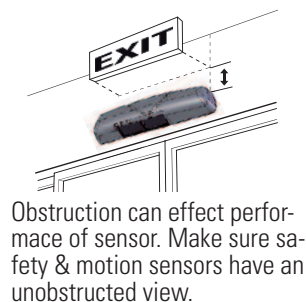
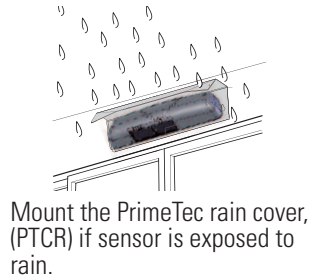
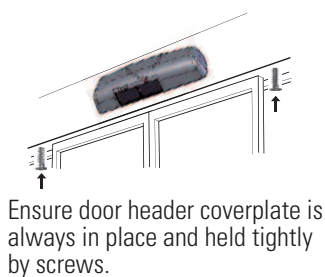
2.2 Installation Safety

- 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.

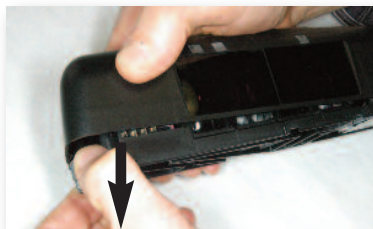
DO NOT LEAVE ANY PROBLEMS UNRESOLVED! DO NOT SACRIFICE SAFETY FOR ANY REASON!

3 Mounting the Sensor

3.1 Special Considerations



3.2 Removing the Cover



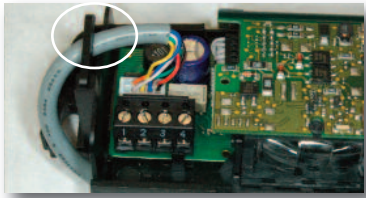
With one finger grasp the sensor base near one of the mounting screw holes and pull the sensor toward you to remove the cover.



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

3.3 Wiring the Sensor

New installation using gray cable with plug



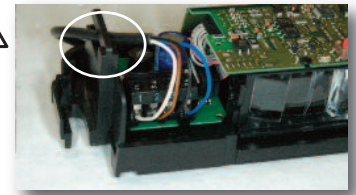
Insert the female plug on the gray cable into the male receptacle on the sensor. Ensure the plug is fully inserted.

Proper insertion of the cable with 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.

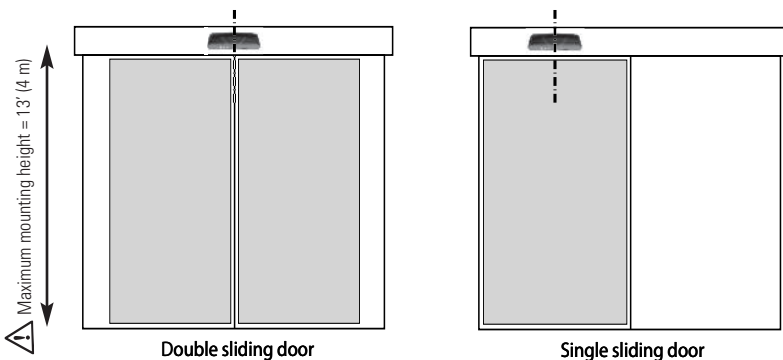
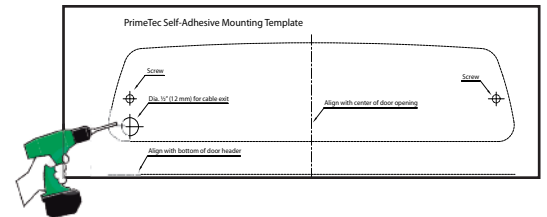
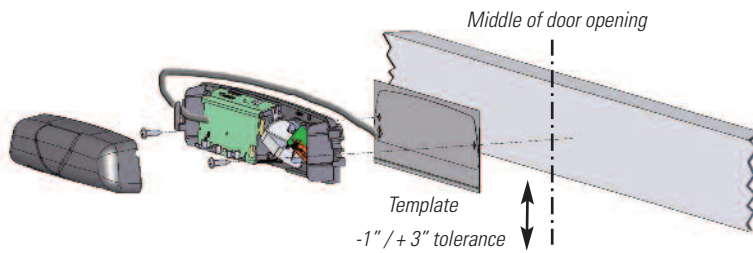
Important note: for both options, slide the cable into the cable bushing to hold it firmly in place. Use of the cable bushing is important to prevent water from seeping into the sensor.

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 environment.

3.5 Positioning & Attaching the Sensor

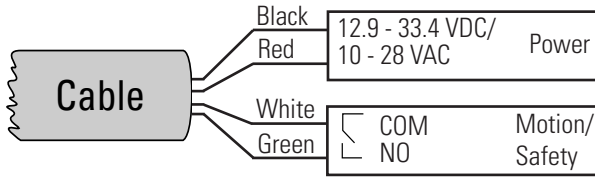


1. Position the self-adhesive mounting template on the door header frame in the middle of the opening (see illustrations for placement on single and double sliding doors). Ensure template is level on the door header frame and the bottom of the template is aligned with the bottom of the door header frame.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

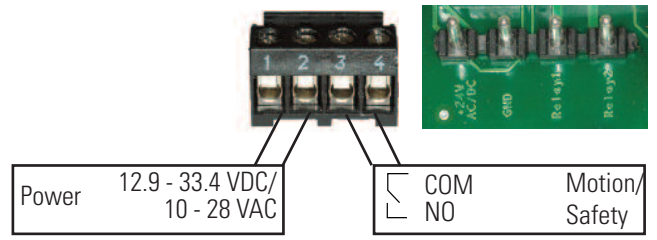
4 Electrical Connections

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

New installation using gray cable with plug



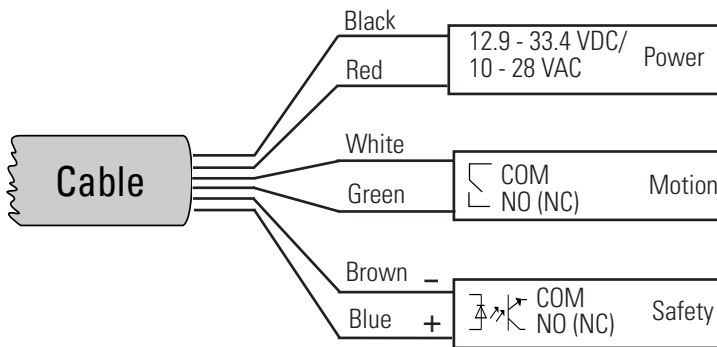
Retrofit installation using detachable screw terminal



4.2 6-Wire Connection: Recommended option (Enhanced performance 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.



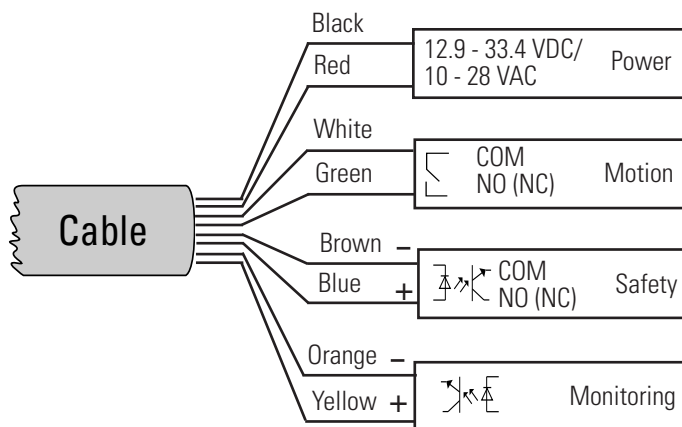
⚠ Check for correct polarity

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

Monitoring function is self-configuring 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.



⚠ Check for correct polarity

⚠ Check for correct polarity

5 Initialization

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

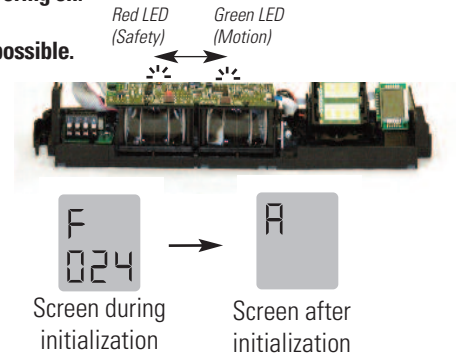
⚠ Make sure no people or moving objects are in the door area, otherwise correct startup will not be possible.

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.

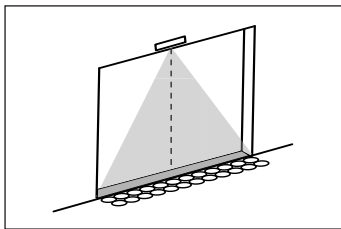
If using combined outputs (standard), the green LED will illuminate together with the red LED when a safety detection occurs.



6 Safety Curtain Adjustment

6.1 Adjusting the Safety Curtain Width

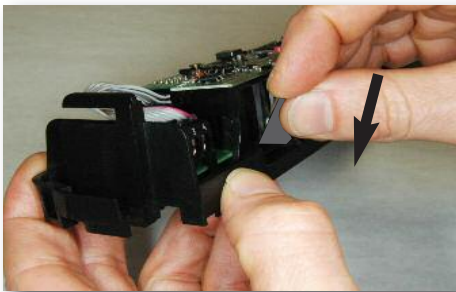
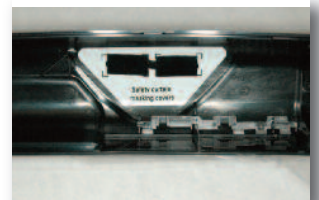
The width of the safety curtain can be adjusted by clicking in the plastic masking cover in front of the sensor lens.



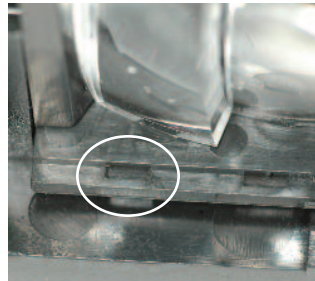
Sensor without masking cover: full pattern size (factory setting)
Field width: approx. 6'6" (2 m) at 7' (2.1 m) mounting height
Field depth: approx 8" (.2 m) for 2 rows

Rule of thumb: field width is approximately equal to mounting height.

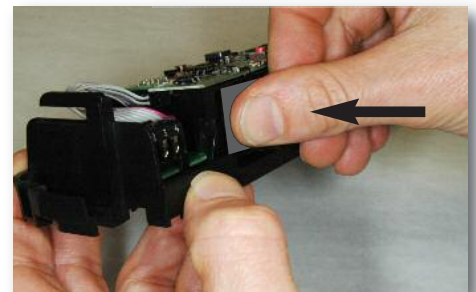
Location of safety curtain masking covers inside sensor cover



1: Insert masking cover in slot below lens.



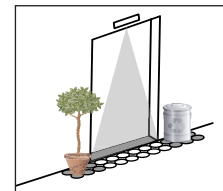
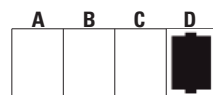
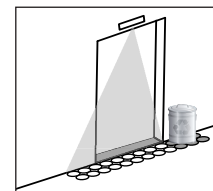
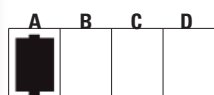
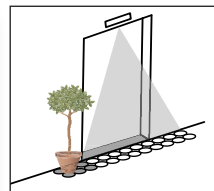
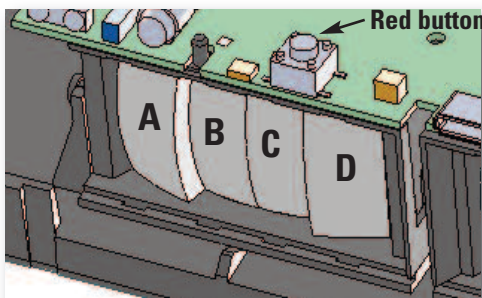
Slot location



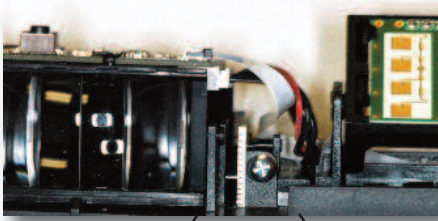
2: Click into place.


Possible safety curtain width settings:

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

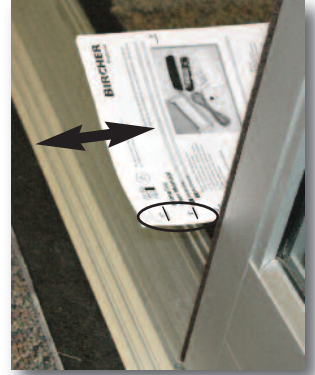


6.2 Adjusting the Safety Curtain Distance from the Door

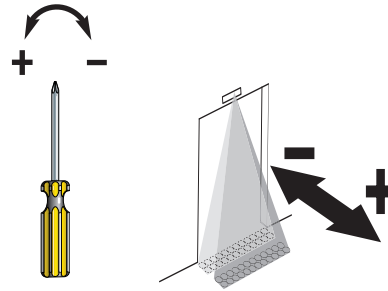
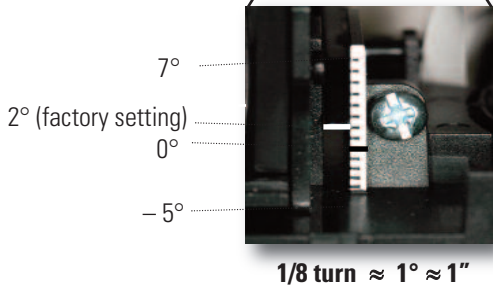


 The safety curtain should be set no more than 3" (7.5 cm) away from the face of the door.

Please refer to current published ANSI standard for exact measurements.



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.

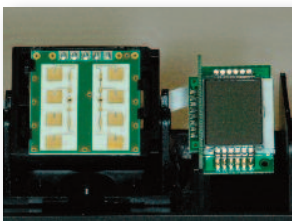
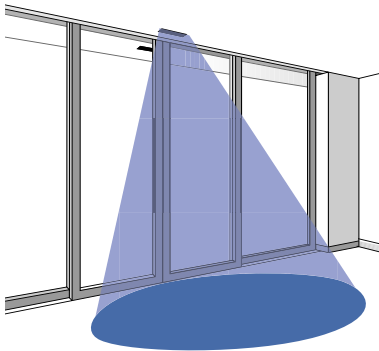
A 1" movement on the floor is approximately equal to 1° (45° turn with a screwdriver), Factory setting = 2°

7 Motion Sensor Adjustment

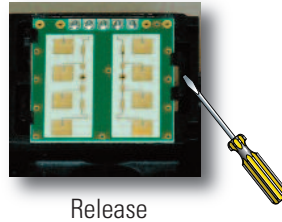
7.1 Changing the Motion Field Pattern

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

Standard Field

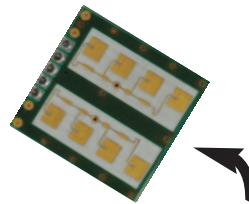


1



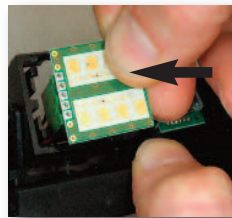
Release

2



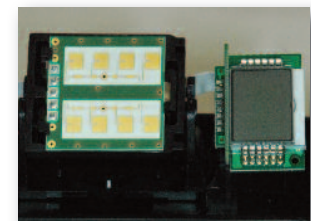
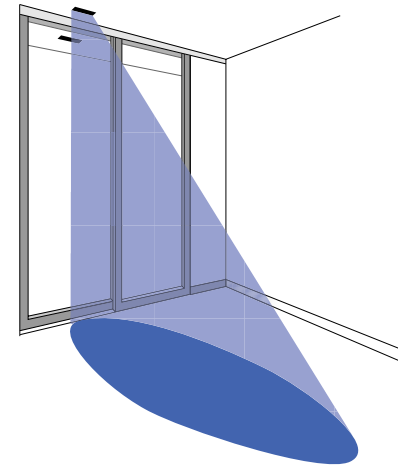
Rotate

3



Click in to place

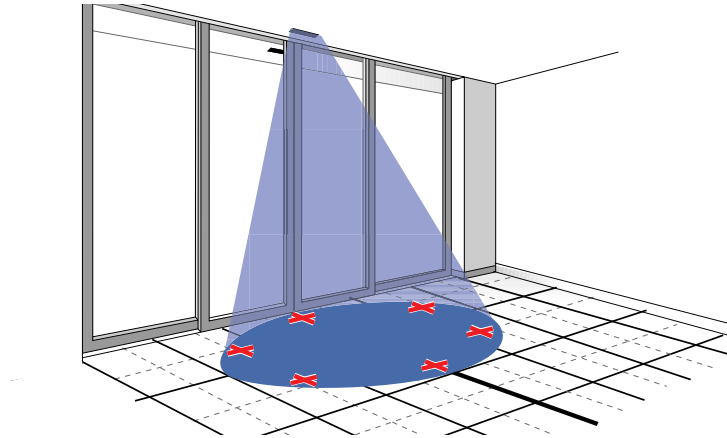
Narrow Field



7.2 Adjusting the Motion Field Size to Meet Standard Requirements

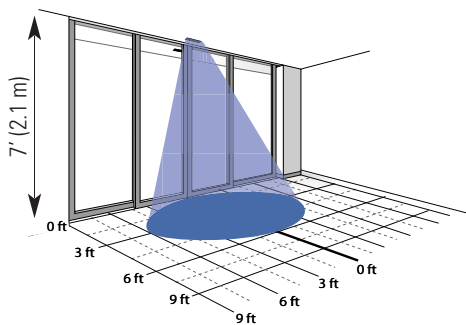
In order to meet ANSI standard 156.10, the sensor's motion field pattern must cover the ANSI-specified field dimensions (designated by x's in the drawing below).

⚠ Please refer to the current published ANSI standard for details.



7.3 Motion Field Dimensions

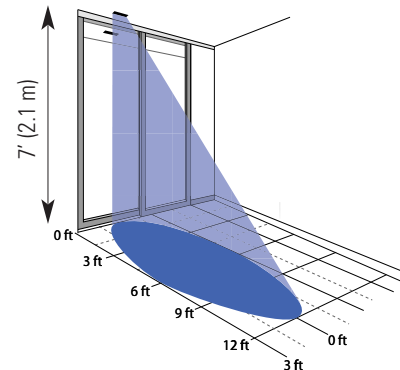
Standard Field



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

*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.*

Narrow Field



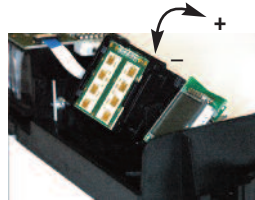
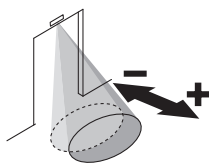
Minimum Field Size: W x D = 6" x 30" (0.16 x 0.8 m)
 Maximum Field Size: W x D = 6' 6" x 13' (2 x 4 m)
 Measured at 30° angle

7.4 Placement of Motion Field

Inclination

-5° to 90° in 5° increments

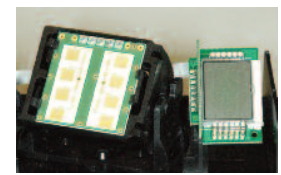
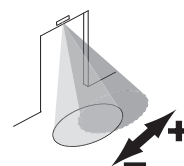
Factory setting: 20° (5 clicks up from end)



Pivot

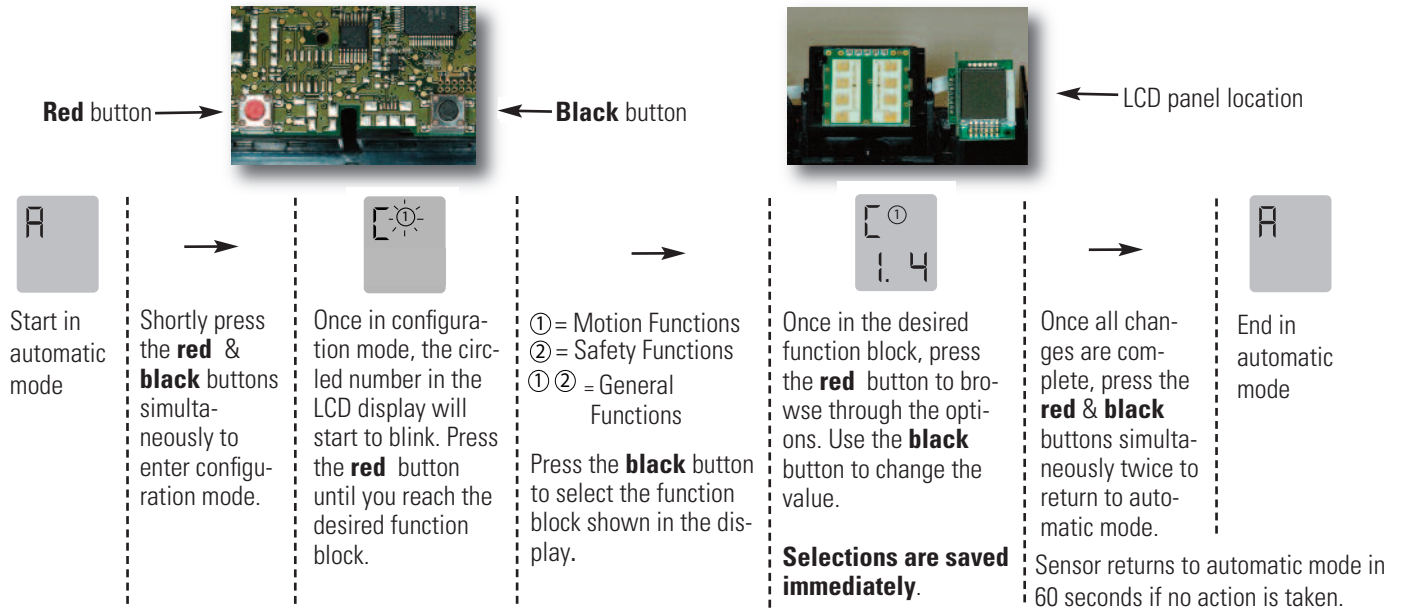
-20° to 20° in 5° increments

Factory setting: 0°



8 Configuration (Operator Buttons)

8.1 Entering Configuration Mode

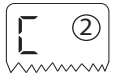
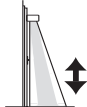



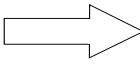





8.2 Motion Sensor Settings

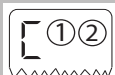
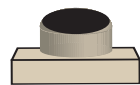


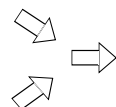

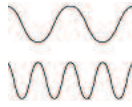

Motion Functions		Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Field Size/Sensitivity		1		1 - 5	1 = Smallest field 4* = Standard field 5 = Largest field
Direction Recognition		2		1, 2	1 = Off 2* = Towards sensor only
Cross Traffic Optimization (CTO)		4		1, 2	1* = Off 2 = Masking of cross traffic
Slow Motion Detection (SMD)		5		1, 2	1 = Off* 2 = On
Interference Filter		6		1, 2	1* = Filter off 2 = Filter on for EM interference, fluorescent tubes, door movement, etc (section 9.1)
Output Logic		7		1, 2	1* = NO 2 = NC

*Factory settings

8.3 Safety Curtain Settings

Safety Functions 		Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Sensitivity		1		2, 3	2* = Regular sensitivity 3 = Snow mode
Teach-In Time		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 		Function (Select with RED button)	LCD	Values (Select with BLACK button)	Description Factory settings in bold with *
Restart		Press & hold red value button for 8 seconds			Initialization & teaching of the background. For more information, see section 5
Factory Reset		1		8	Pressing black button at this point resets unit to factory settings immediately . To avoid factory reset and skip to next function block, press the red button. Shortcut: Press & hold both red and black buttons simultaneously for 8 seconds
Combined/Separate Outputs		2	LCD after using shortcut: 	1, 2	1* = 4-wire configuration (combined outputs for motion & safety) 2 = 6-wire & 8-wire configurations (separate outputs for motion & safety) Shortcut: Press & hold black button for 8 seconds to <u>separate</u> motion & safety outputs
Frequency of safety curtain		3		1, 2	1* = Frequency 1 2 = Frequency 2

Please note: some settings may not meet all applicable 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.

9 Troubleshooting

9.1 Remediating False Tripping

Red LED (Safety)	Green LED (Motion)	Fault	Remedy
Off	On	Door reversal while closing	<ol style="list-style-type: none"> 1. Set angle of microwave further away from door (section 7.4). 2. Reduce microwave field size/sensitivity (section 8).
Off	On	Opening signal without apparent external influence	<ol style="list-style-type: none"> 1. Make sure there are no moving objects such as plants, etc in the vicinity of the sensor. 2. Ensure door header coverplate is always in place and held tightly by screws. 3. Mount sensor away from fluorescent or HID light sources. 4. Direct microwave module away from other microwave sensors in the area (section 7). 5. Activate filter (section 8.2).
On	On ¹	Door reversal while closing	<ol style="list-style-type: none"> 1. Set angle of safety curtain further away from door (section 6.2).
On	On ¹	Safety detection without apparent external influence	<ol style="list-style-type: none"> 1. Mount sensor away from fluorescent or HID light sources. 2. Avoid puddles of water on the ground. 3. Ensure door header coverplate is always in place and held tightly by screws. 4. Avoid interference from other AIR sensors by using a different frequency setting. 5. Use snow mode (section 8.3). 6. Use separate power supply for sensor & door operator.
Off	Off	Door stays open	<ol style="list-style-type: none"> 1. Change output logic of safety or motion output (NO/NC) (section 8).

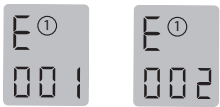
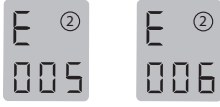
¹ If using separate safety & motion outputs, only red indicator LED will be illuminated.

*Factory settings

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!

9.2 Error Messages

Red LED (Safety)	Green LED (Motion)	LCD	Fault	Remedy
Flashing	Off		<ol style="list-style-type: none"> 1: Self test (RAM/ROM) 2: Watchdog 	<ol style="list-style-type: none"> 1. Power down & repower sensor or restart sensor by pressing & holding red button for 8 seconds 2. If sensor displays same error or does not start, exchange device
Flashing	Off		<ol style="list-style-type: none"> 5: Safety curtain fault 6: Safety output fault 	<ol style="list-style-type: none"> 1. Power down & repower sensor or restart sensor by pressing & holding red button for 8 seconds 2. Clean safety curtain window on unit cover 3. If sensor displays same error or does not start, exchange device

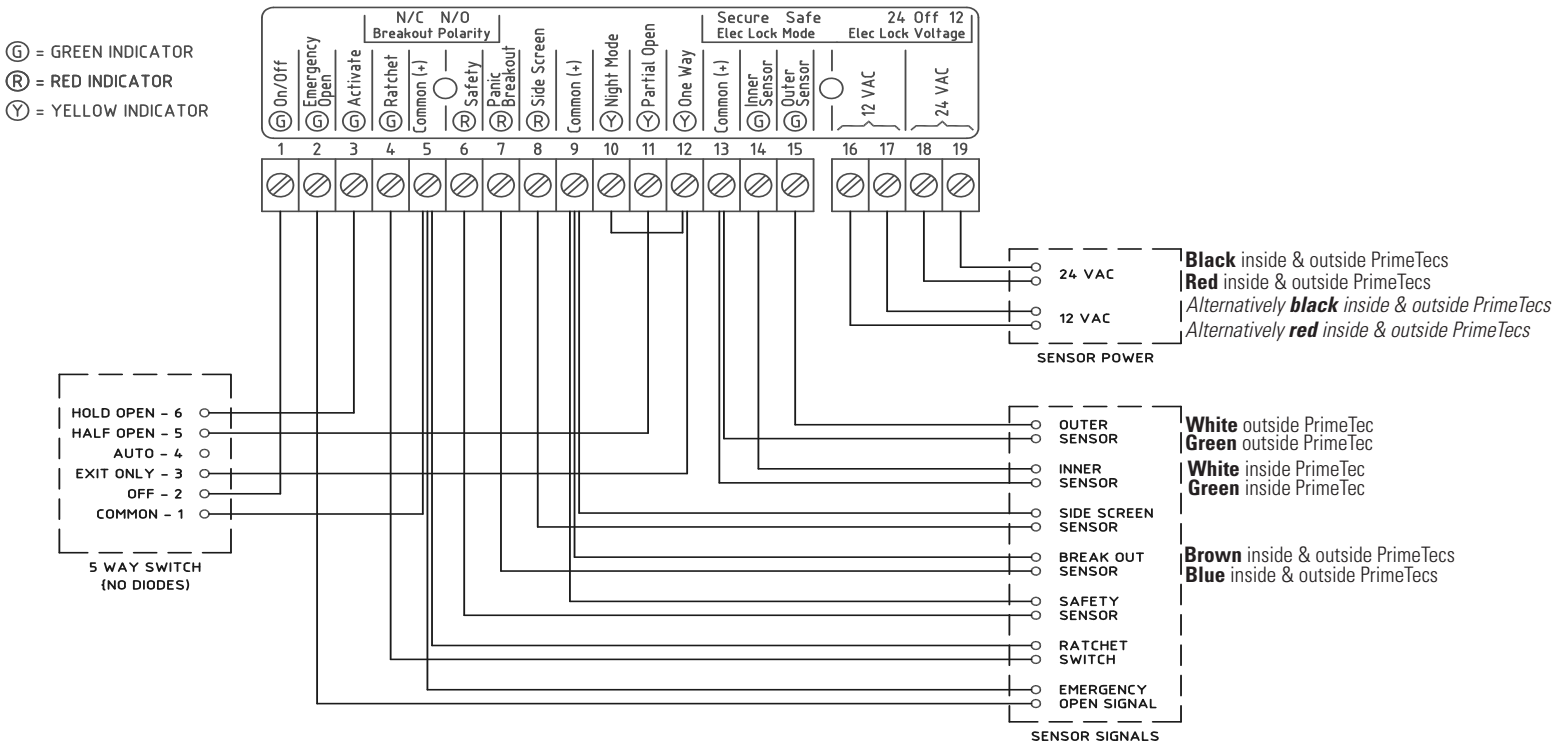
10 Common Door Operator Wiring Diagrams

10.1 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.

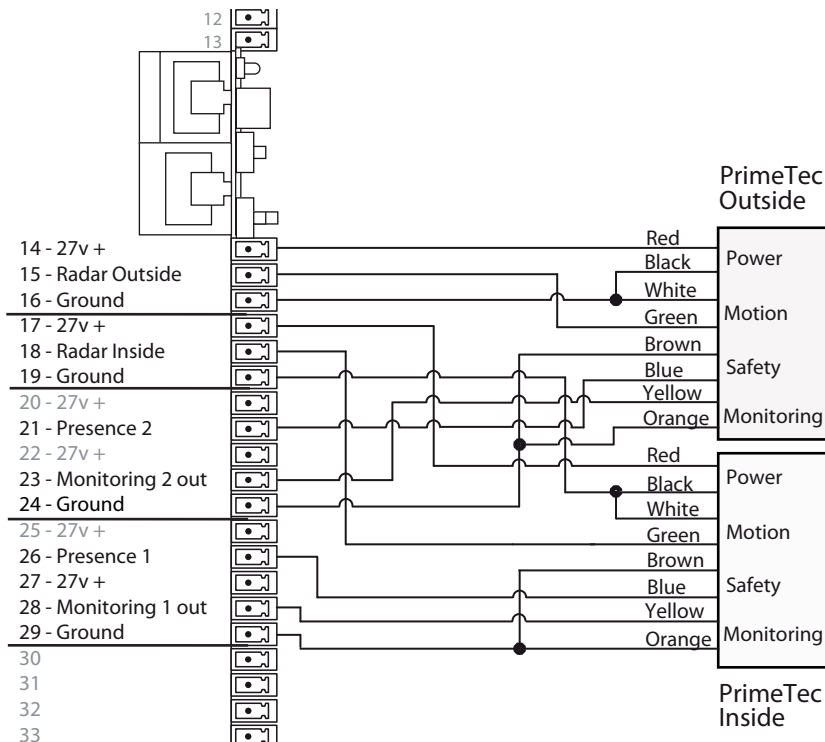


10.2 Dorma ESA-II



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.



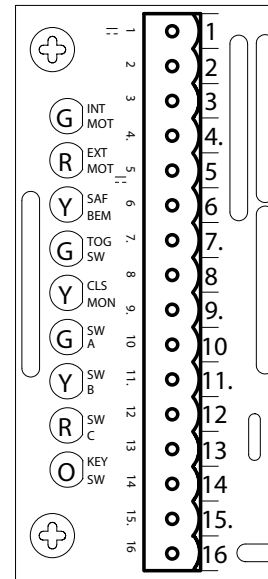
10.3 Horton C2150



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.

- red** inside & outside PrimeTecs ○ 1 +24VDC
- green** inside PrimeTec ○ 2 INTERIOR SW.
- green** outside PrimeTec ○ 3 EXTERIOR SW
- Black & white** inside and outside PrimeTecs ○ 4 COMMON
- 5 +24VDC
- blue** inside & outside PrimeTecs ○ 6 SAFETY BEAM
- brown** inside & outside PrimeTecs ○ 7 COMMON
- 8 TOGGLE SW
- 9 COMMON
- 10 CLS MON SW
- 11 COMMON
- 12 PART'L OPEN
- 13 2WAY / 1WAY
- 14 NIGHT SW
- 15 COMMON
- 16 DAY/NITE SW



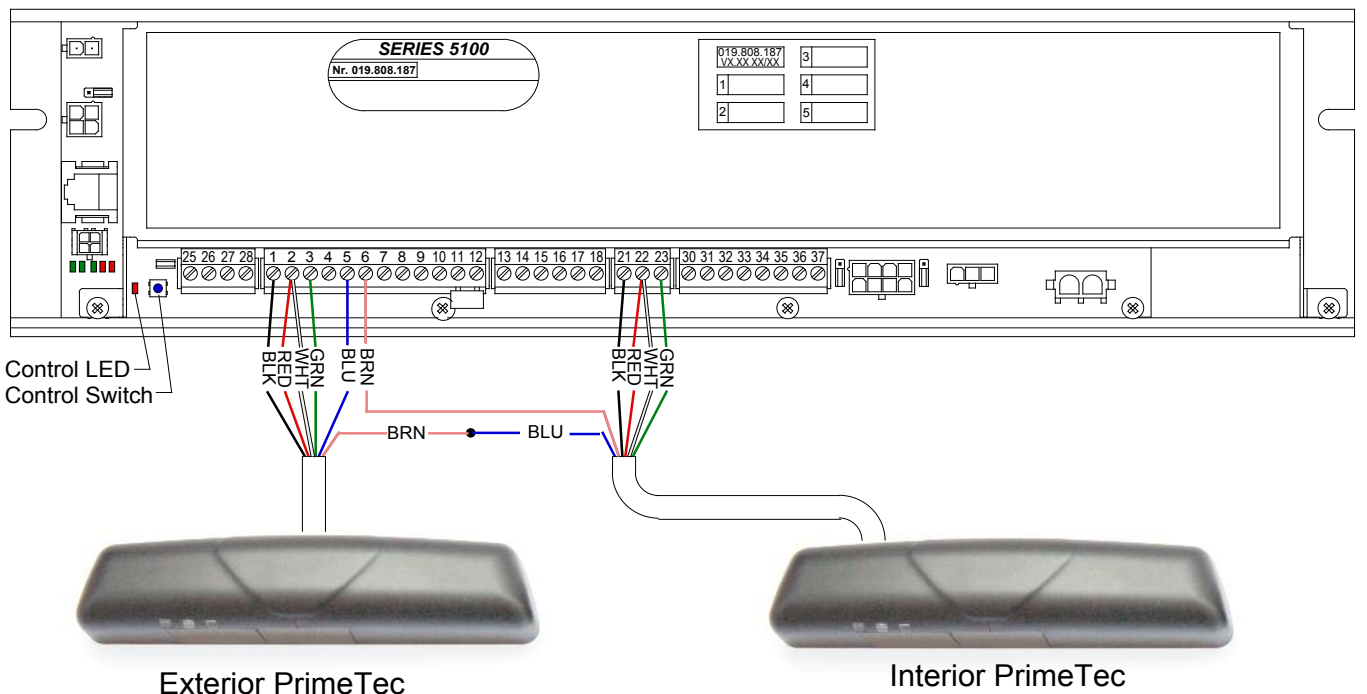
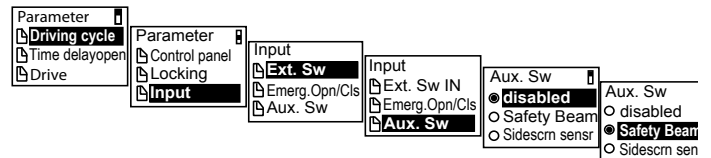
10.4 Record Series 5100



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.

Press & hold the blue Control Switch for 4 flashes of the red Control LED, then release. The first screen at right should appear on the jamb-mounted Display Control Panel. Scroll down to and select "Input", then scroll down and select "Aux. Sw"; next scroll down and select "Safety Beam".
Connect the PrimeTec's as shown below.



10.5 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

12Vac	○ 1	Alternatively black inside and outside PrimeTecs
12Vac	○ 2	Alternatively red inside and outside PrimeTecs
Common	○ 3	White inside PrimeTec
Inside sensor	○ 4	Green inside PrimeTec
12Vac	○ 5	Black inside and outside PrimeTecs
12Vac	○ 6	Red inside and outside PrimeTecs
Common	○ 7	White outside PrimeTec
Outside sensor	○ 8	Green outside PrimeTec
	○ 9	
	○ 10	

Connector TB3: Separate motion/safety outputs

	○ 1	
	○ 2	
	○ 3	
	○ 4	
	○ 5	
	○ 6	
Common	○ 7	Brown inside and outside PrimeTecs
Holding beam	○ 8	Blue inside and outside PrimeTecs
	○ 9	
	○ 10	

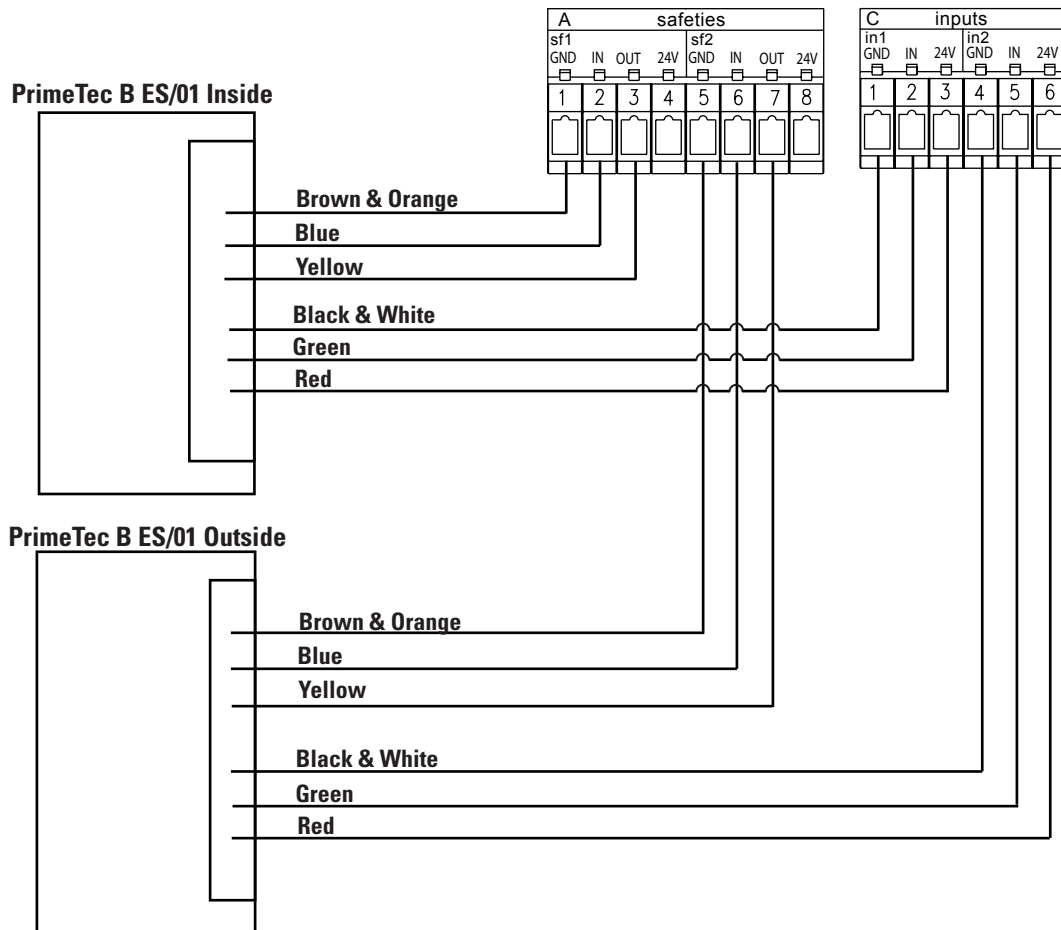
10.6 Tormax iMotion



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.



10.7 Additional Door Operator Wiring Diagrams

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

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 occur 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 expressly 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) 12.9 - 33.4 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



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



For sidelight protection
PrimeScan Sensor
PrimeScan B ES/01 bk

14 Declaration of Conformity

Manufacturer:	Bircher Reglomat AG, Wiesengasse 20, CH-8222 Beringen, Switzerland, www.bircher-reglomat.com
Importer:	Bircher America, Inc. 870 Pratt Ave N, Schaumburg, IL 60193, USA, www.bircherreglomat.com
Directives observed:	2006/42/EC, R&TTE directive 1999/5/EC, EMV-directive 004/108/EC
Standards taken into account:	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
FCC:	UXS2
IC:	6902A-UXS2
Important note:	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.

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Bircher Reglomat
870 Pratt Avenue N
Schaumburg, IL 60193
Phone: 847-952-3730
Toll-Free: 800-252-1272
Fax: 847-952-2005
Email: sales@bircherreglomat.com
Web: www.bircherreglomat.com