BIRCHER
Reglomat

PrimeMotion User Manual

Microwave motion sensor for opening automatic pedestrian swing doors

1 Introduction

1.1 Box Contents

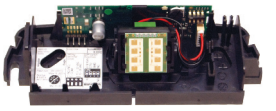
The box contains the following items:

- A PrimeMotion sensor
- B Cover
- C 10' (3 m) 4-wire electrical cable
- D Instruction manual
- E Self-adhesive mounting template
- F Self-tapping mounting screws (2)

Tools required for installation:

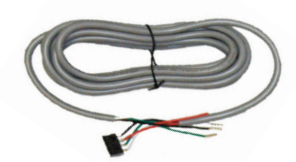
- Ladder
- Tape measure
- Level
- Electric drill with 1/4" (5 mm) drill bit
- 1/16" (#0, 2.4 mm) flathead screwdriver
- Electric screwdriver with phillips head (size #2)

A



B

C



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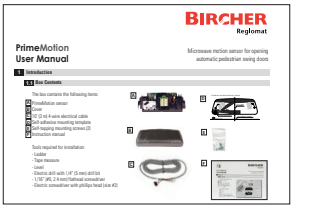

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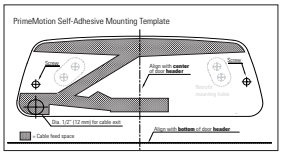
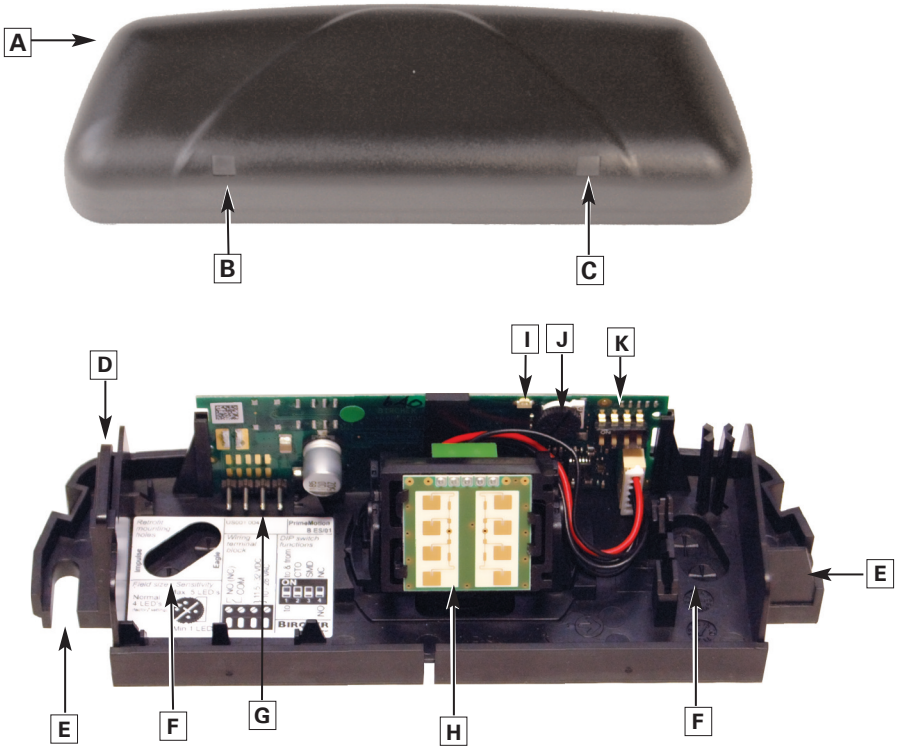


F

1.2 Tools Required for Installation

- Ladder
- Tape measure
- Level
- Electric drill with 1/4" (5 mm) drill bit
- 1/16" (#0, 2.4 mm) flathead screwdriver
- Electric screwdriver with phillips head (size #2)

1.3 Parts of the Sensor



- A Cover
- B Not used
- C LED detection indicator window
- D Cable bushing
- E Mounting screw holes (2x)
- F Retrofit breakout screw holes (2x)
- G Cable connection screw terminals
- H Microwave module
- I LED detection indicator (green)
- J Field size/sensitivity adjustment potentiometer
- K Function selection DIP Switch

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 swinging 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.

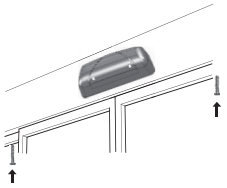
2.2 Installation Safety

-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.

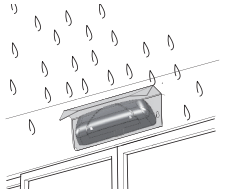
DO NOT LEAVE ANY PROBLEMS UNRESOLVED! DO NOT SACRIFICE SAFETY FOR ANY REASON!

3 Mounting the Sensor

3.1 Special Considerations

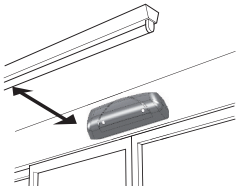


Ensure door header coverplate is always in place and held tightly by screws.



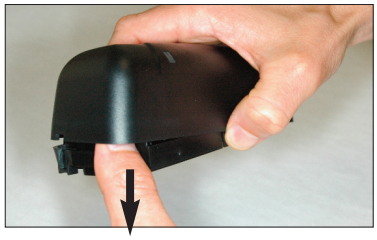
Mount the PrimeMotion rain cover, (PMCAP) if sensor is - exposed to rain.

Obstruction can effect perfor-mace of sensor. Make sure sen-sor has an unobstructed view.

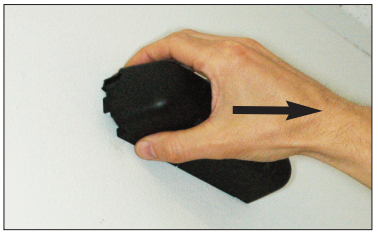


Mount sensor away from fluo-rescent or HID light sources.

3.2 Removing the Cover

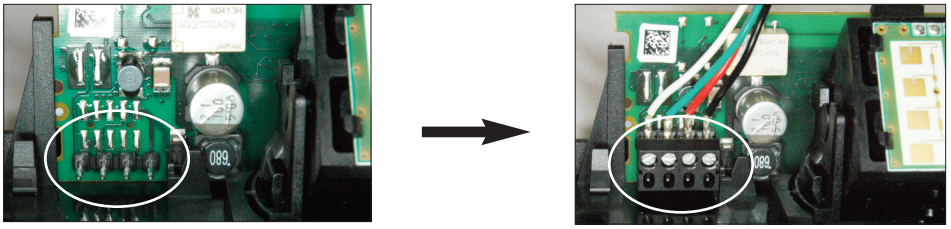


With one finger grasp the sensor base near one of the mounting screw holes and pull the sensor toward you to remove the cover.

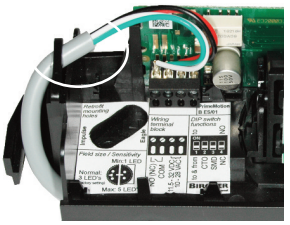


To remove cover once the sensor is mounted on the door frame, grasp the cover firmly on either side and pull toward you.

3.3 Wiring the Sensor

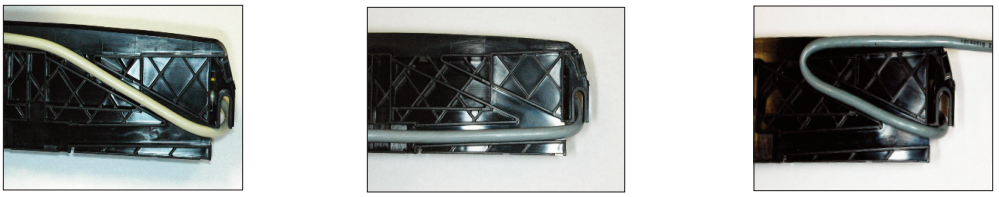


Attach the pre-wired terminal to the four pins on the sensor.
For retrofit applications, wire pre-existing operator cable to terminal (see chapter 4 for wiring diagram).



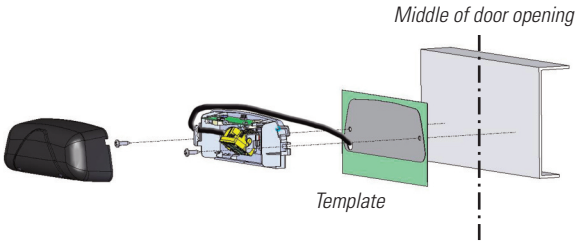
⚠ Important note: slide the cable into the cable bushing to hold it firmly in place.
Use of the cable bushing is important to prevent water from seeping into the sensor.

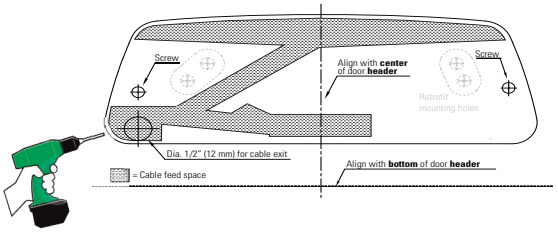
3.4 Routing the Cable (for retrofit installations with existing cable hole)



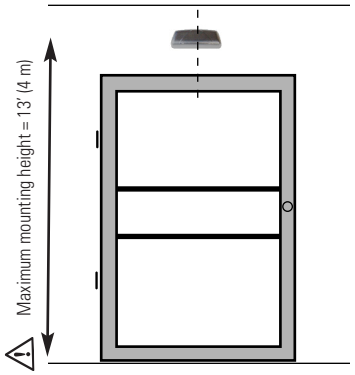
Route the cable in the cable channels so it is flush against the back of the sensor. Several options are shown- select the best option for your environment.

3.5 Positioning & Attaching the Sensor

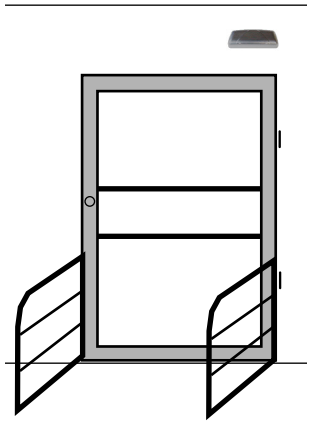




Approach Side



Swing Side



1. Position the self-adhesive mounting template on the door header frame (see illustrations for placement on approach or swing side). 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.

2. Drill hole for cable in marked location using 1/4" drill bit.

3. Using an electric screwdriver, insert self-tapping screws in marked location.

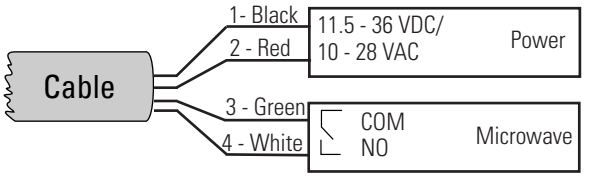
4. Remove the mounting template.

5. Attach sensor to screws and tighten to hold the sensor firmly on the door header frame.

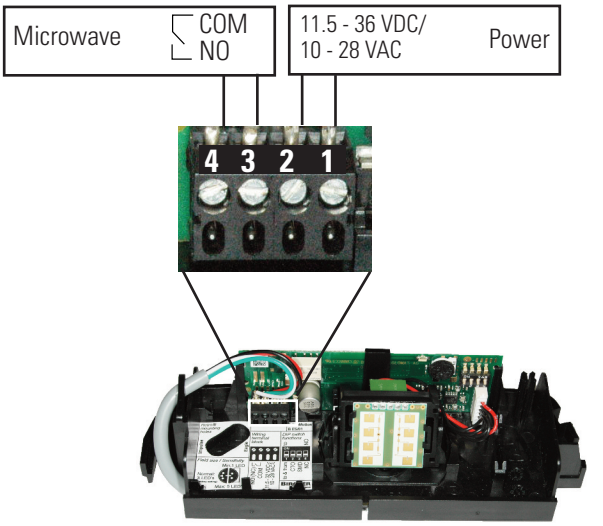
4 Electrical Connection

Use the diagram below to wire the sensor into your door operator.

New installation using gray cable with screw terminal



Retrofit installation using detachable screw terminal

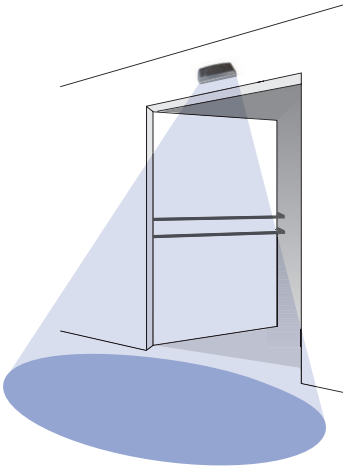


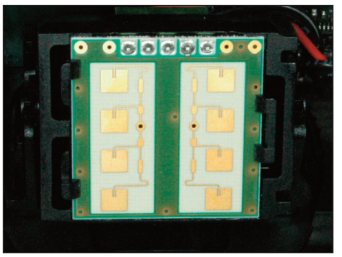
5 Sensor Adjustment

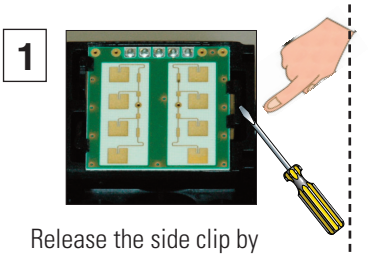
5.1 Changing the Motion Field Pattern

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

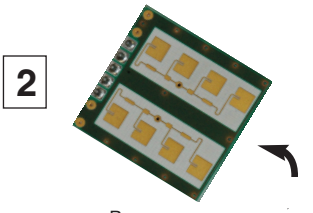
Standard Field



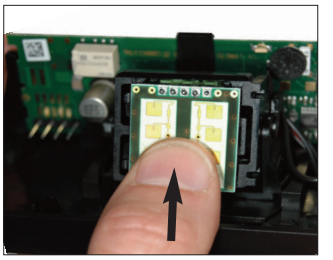




Release the side clip by hand or with a screwdriver

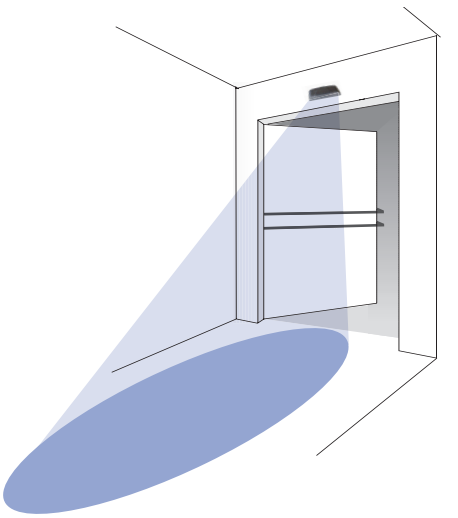


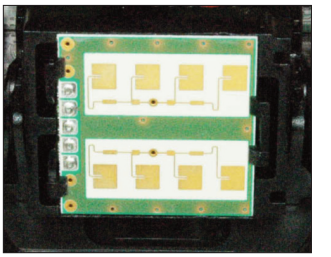
Rotate



Push module into place until it clicks

Narrow Field

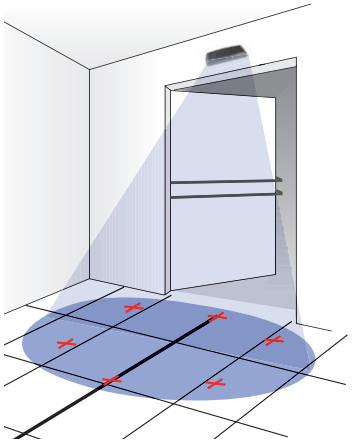




5.2 Adjusting the Motion Field Size to Meet Standard Requirements

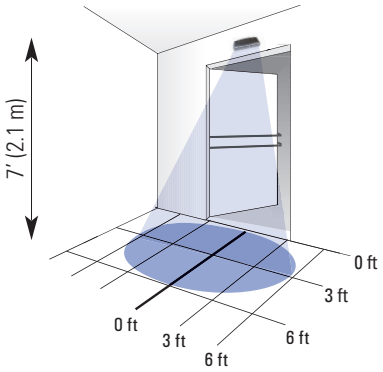
In order to meet ANSI standard 156.10, the sensor's motion field pattern must cover the ANSI-specified field dimensions (designated by x's in the drawing below).

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



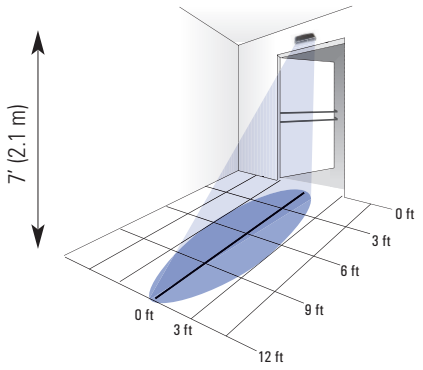
5.3 Motion Field Dimensions

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 a 30° angle

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 a 30° angle

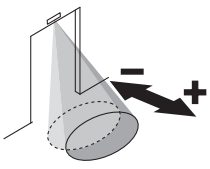
*Rule of thumb: The **width:depth** ratio of the motion field is approximately **2:1** (standard field) or 1:2 (narrow field)*
Field size changes with mounting height.

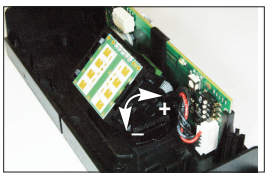
5.4 Placement of Motion Field

Inclination

-5° to 90° in 5° increments

Factory setting: 20° (5 clicks from end)

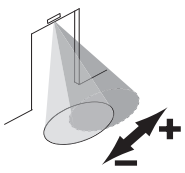


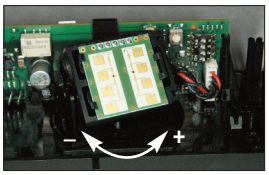


Pivot

-20° to 20° in 5° increments

Factory setting: 0°

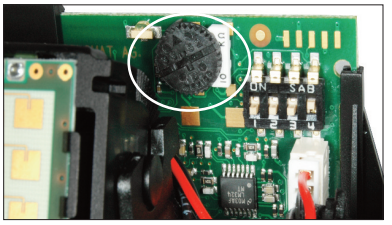




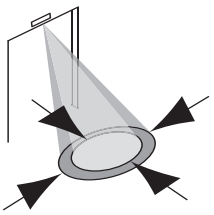
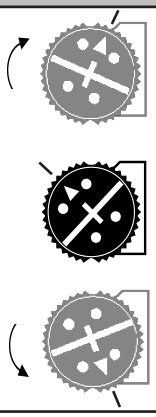
6 Sensor Configuration

6.2 Changing Microwave Field Size/Sensitivity using the Potentiometer

To change the microwave field size/sensitivity, rotate the potentiometer with your finger. The LED will flash according to the selection chosen (ie. 4 flashes for setting 4, etc.)

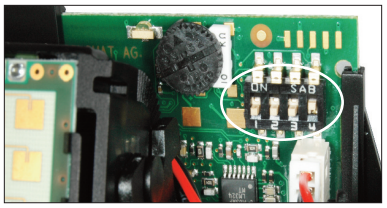


Potentiometer location

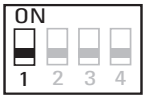
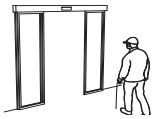
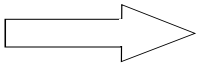
Function		Potentiometer	Description Factory Settings in bold with * Range = 1 to 5
Field Size / Sensitivity			5 = Largest field size / highest sensitivity (LED flashes 5 times) **4* = Standard field size / standard sensitivity** **(LED flashes 4 times)** 1 = Smallest field size / lowest sensitivity (LED flashes once)

6.1 Changing Settings using the DIP Switches

To activate or deactivate the features listed below, carefully slide the corresponding switch with a small 1/16" (size # 0, 2.4mm) flathead screwdriver, pen, or your fingernail until it fully clicks into place.



DIP Switch location

Function		DIP Switch	Description Factory Settings in bold with *
Direction Recognition			ON = Both directions **OFF*= Towards sensor only**
Cross Traffic Optimization (CTO)			ON = Reducing unwanted opening from traffic walking by **OFF* = Off**
Slow Motion Detection			ON = SMD on **OFF* = SMD off**
Output Logic			ON = Passive (NC) **OFF* = Active (NO)**

7 Troubleshooting

LED	Fault	Remedy
On	Detection without apparent external influence	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 5).
On	Door reversal while closing (only applies when sensor is mounted on swing side of door)	1. Set angle of microwave further away from door (section 5.4) 2. Adjust microwave field size/sensitivity (section 6.2)

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!

8 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.

9 Technical Data

Specification	Value
Technology	Microwave double field module (24.125 GHz)
Mounting height	6' - 13' (1.8 - 4 m)

Electrical power supply	≤ 120 mA @ 11.5 - 32 VDC / 12 - 28 VAC
Power consumption	< 4 W
Making current	≤ 800 mA
Output	Solid state relay NO (NC) Max. contact voltage: 48 VDC / 48 VAC Max. switching current: 80 mA Max switching power: 0.5 W AC/DC
Protection class	Suitable for use acc. to NEMA 3 (IP54)
EMV / 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 = 6.8" x 2.4" x 1.9" (172 x 60 x 48 mm)
Weight	4.2 oz (120 g)
Product designation	PrimeMotion B ES/01

10 Optional Accessories & Supplementary Products

Rain Cover
PMCAP
For areas exposed to rain

Door-mounted safety sensor
TopScan

11 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, 1997/BS7036-1 & BS7036-2
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BIRCHER Reglomat

Member AADM

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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

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