Motion Detection with Radar Sensor Technology

Radar-based detection for any MOBOTIX camera with MxBus connector

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| MX-Proximity-Box	
Product name	MX-Proximity-Box
MOBOTIX order code	MX-PROX-BOX
EAN	4047438025881
Supported video sources	All MOBOTIX cameras and doorstations with MxBus connector with firmware version 4.4.2.5x or higher (from 14/24 series)
Ambient temperature	-20 to 60°C (-4 to 140°F)
IP Class	IP66 (dust-proof and resistant to water jets)
IK Class	Corresponds to IK07 (protection against mechanical impacts of up to 2 joules: 500 g at a height of 20 cm)
Intended use	- Not for use in areas at risk of explosions; connection (Ex area) - Connection to MxBus only - Only in combination with MOBOTIX cameras with MxBus connector - Set-up and configuration via MxMessageSystem - Length of the entire MxBus cable cannot exceed 100 m
Dimensions (height x width x depth)	63 x 87 x 31 mm
Weight (without packaging)	73 g
Connections	MxBus (2 clamps)
Diameter MxBus wiring	0.6 to 0.8 mm; recommendation: 0,8 mm J-Y(St)Y (AWG 21)
Power supply	48 V DC, via camera and MxBus
Power consumption	0,5 to 1 W
Frequency (Radar radiation)	~24 GHz
Radiation power (EIRP)	12,59 to 63,1 mW, typ. 31,63 mW
Detection range	80° x 34° (horizontal x vertical) Individual: 0 to 15 m (0 to 50 ft) Automobile: 0 to 35 m (0 to 115 ft)
Detectable movements	Approaching, distancing and general movements
Recommended installation height for detecting people	100 to 120 cm (3.3 to 3.9 ft)
Suitable materials for concealed installation	It is not possible to install the MX-Proximity-Box behind some materials since they absorb or reflect the radar waves (e.g., metal or metal-coated surfaces). Other materials are better suited since they absorb radar waves only slightly (e.g., uncoated glass, plastics, various wood-based materials, drywall). It is highly recommended to test the detection area before installing by covering the front of the MX-Proximity-Box with the material you want to use.
LED	2x RGB; left LED: operating status; right LED: radar signal (leaving/approaching/ movement); LED intensity increases with increasing strength of the reflected radar signal
Housin	PBT GF30
Certifications	EN 60950-1:2006/A11:2009/A1:2010/A2:2013/AC:2001/A12:2011 EN 301 489-1 V2.1.1, EN 301 489-3 V1.6.1, Draft EN 301 489-3 V2.1.0 EN 300 440-1 (V1.6.1); EN 300 440-2 (V1.4.1); (Draft EN 300 440 V2.1.0) CFR 47 FCC Part 15C RSS-310 ISSUE 4
MTBF	> 80.000 hours
Mitgeliefertes Zubehör	1 screwdriver, 1 plug 3 to 5 mm, 1 plug 5 to 7 mm, 1 MxBus cable 0.5 m/1.64 ft, 2 washers Ø 4.3 mm, 2 stainless steel wood screws 4x40 mm, 2 screw anchors S6, 1 security bit TX10
Detailed technical documentation	www.mobotix.com > Support > Manuals
Online version of this document	www.mobotix.com > Support > Spec Sheets

General Product Information

Concealed Motion Detection For MOBOTIX Systems

The MX-Proximity-Box is a compact, weatherproof interface box (IP66) with integrated microwave radar sensor technology that can be connected to all cameras using MxBus. The MX-Proximity-Box detects moving objects using actively emitted and reflected radar waves. Since it can be installed at distances of up to 100 m away from the camera (via MxBus connection), the MX-Proximity-Box is a helpful supplement to the passive infrared sensor (PIR) that is integrated with the D15, M15 and ExtIO as a standard.
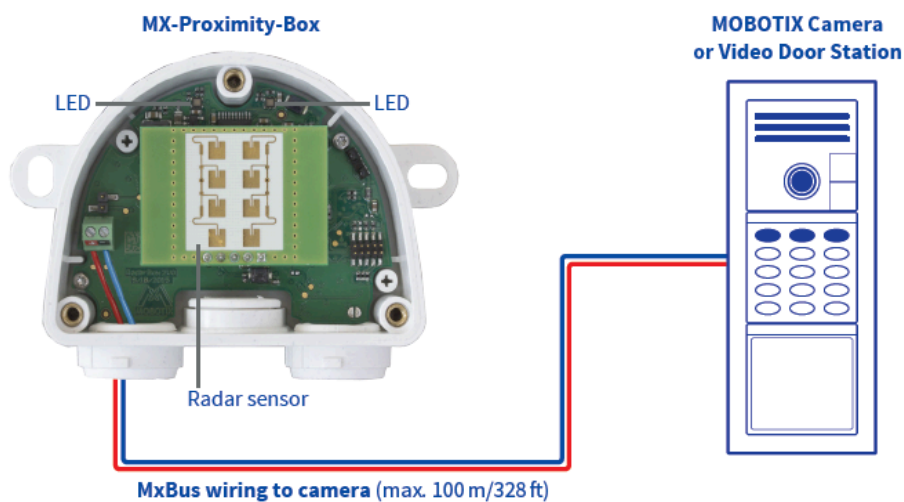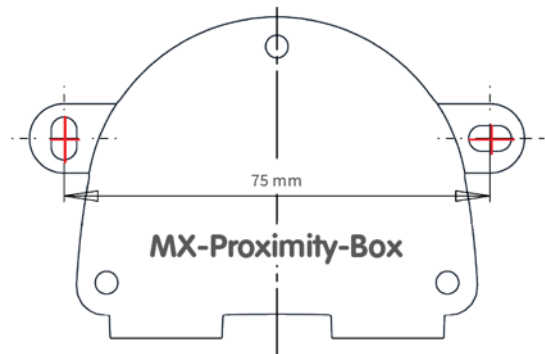
Special Features Of The Radar Sensor As Compared To The PIR Sensor

The reception behavior of the radar sensor differs significantly from that of motion sensors on an infrared basis. While infrared sensors react relatively unresponsive to movements in a radial direction (straight approaching and distancing, such as a person approaching the door to a building or a car approaches a closed gate), radar sensors are extremely sensitive to this type of motion. The reverse is true for sideways movements in front of the sensor.

Example of radial motion (approaching/distancing)
The car drives up directly to the MX-Proximity-Box

Example of sideways or general motion:
The car drives past the MX Proximity-Box

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Unlike an infrared motion sensor, a radar sensor does not require there to be any difference in temperature between the moving object and the environment. The MX-Proximity-Box reacts to people and animals as well as to vehicles and machine parts. Since radar waves penetrate nearly all non-metallic materials, radar sensors can be installed in a concealed and sabotage-proof way. Radar waves easily penetrate plastic, drywalls and ceramic.
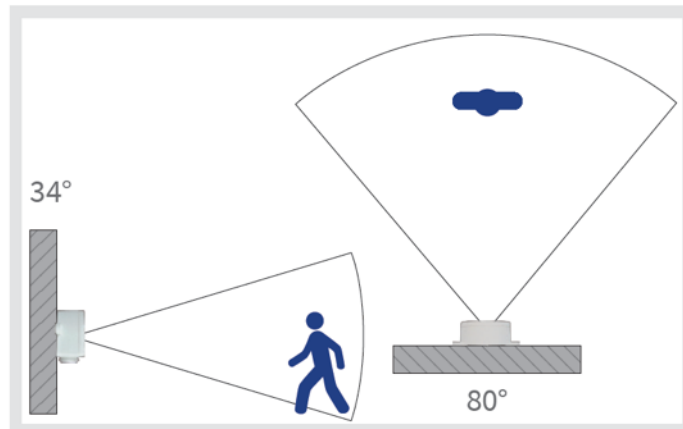
The MX-Proximity-Box features a radar image area that measures **80° horizontally** and **34° vertically**. It can detect vehicles at a distance of up to 35 meters, and people at a distance of up to 15 meters.

Configuring The MX-Proximity-Box

The MX-Proximity-Box boasts a special technical feature: It differentiates between radar signals, meaning the type of motions the box reacts to and sends a message about (via the MxMessageSystem). Users can determine the message names and select the motion profiles to be triggered in the camera software, which is meant to be opened in the Internet browser (for Versions MX-V4.4.2.5x and higher), in the **Admin Menu** under **MxMessageSystem > Message configuration of the MxBus module** . The profiles for approaching, distancing and movements include individual parameters for the detection of these types of human movements that have mostly been predefined. However, users can also set highly customized parameter values in Profile Custom that could be better suited for target objects other then people (such as cars), by following the online instructions in the camera software.

MX-Proximity-Box: Highlights
✓ Radar wave-based detection of moving objects, even if there is no difference in temperature between these and the environment
✓ Ideal supplement to PIR sensors that only react to infrared radiation
✓ Detection of all kinds of movements, plus the option to filter out radial movements (only sends MxMessage for approaching/distancing objects, for instance)
✓ Pre-defined profiles of approaching/distancing/movements for optimal detection of human movements
✓ Completely concealed installation behind wood, plastic or drywall is possible (with reduced detection range)

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