

## DUAL TECHNOLOGY SENSORS (IR+MW)

**The sensors are used** for the protection of long perimeter sectors with high requirements for the mean time for false alarm, i.e. high immunity for industry, natural and common interference. There are two modifications of Dual Technology sensors, Bistatic – MIR-B and Monostatic – MIR-M.

**The principle of operation:** we achieved the high interference immunity of the sensor thanks to the combination of two different physical principles of operation – bistatic (monostatic) microwave (MW) and active (passive) infrared (IR), i.e. two ways of intrusion detection.

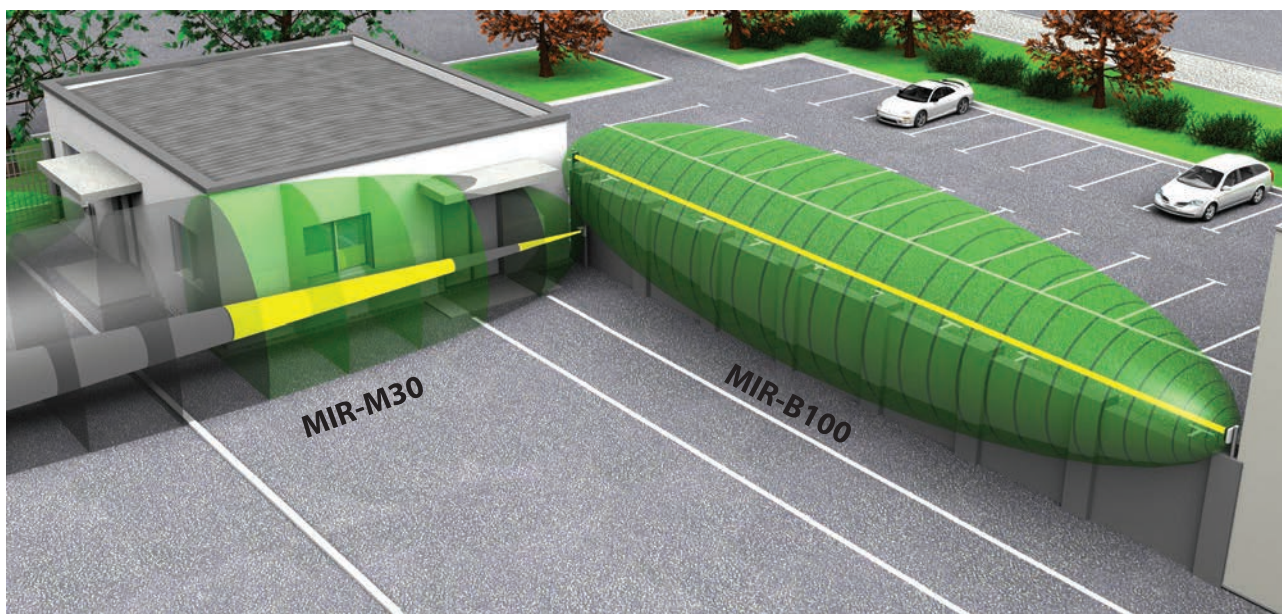
Different interferences influence differently on the processing channels. For example, the litter raised by the wind can activate the IR channel and the MW channel will stay inactive. That is why combination of these two physical principles and alarm initialization at the activation of both channels allowed to increase significantly the interference immunity.

There is no complete analogues of our sensors in architecture, design and integrated functionality.

The sensors are used to protect big and small industrial factories, military bases, transport structure, etc.

As the alarm is generated only at the activation of both channels, the resultant detection zone in case of bistatic dual technology sensors has small dimensions – the dimensions of the IR beam. Like this we can use the sensors for the protection of perimeter sectors requiring extra narrow detection zone.

The high survivability of the sensor is assured thanks to the performance of the sensor in case of failure or false alarming of one of the detection channels.



Protection of the perimeter using the Dual Technology Bistatic sensor MIR-B100 and Dual Technology Monostatic sensor MIR-M30

- - microwave channel
- - infrared channel
- - sub zones disconnected

## MIR-B100, MIR-B50

The principle of operation is based on the operation of two channels working on two different physical principles of detection: bistatic microwave and bistatic infrared.

The sensors performance is the most effective on direct perimeter sectors requiring extra narrow detection zone, for example, if the sensors are installed by the top of the fence, in corridors, in areas near side-walks and roads, etc.

MIR sensors operate on 24,15 GHz.

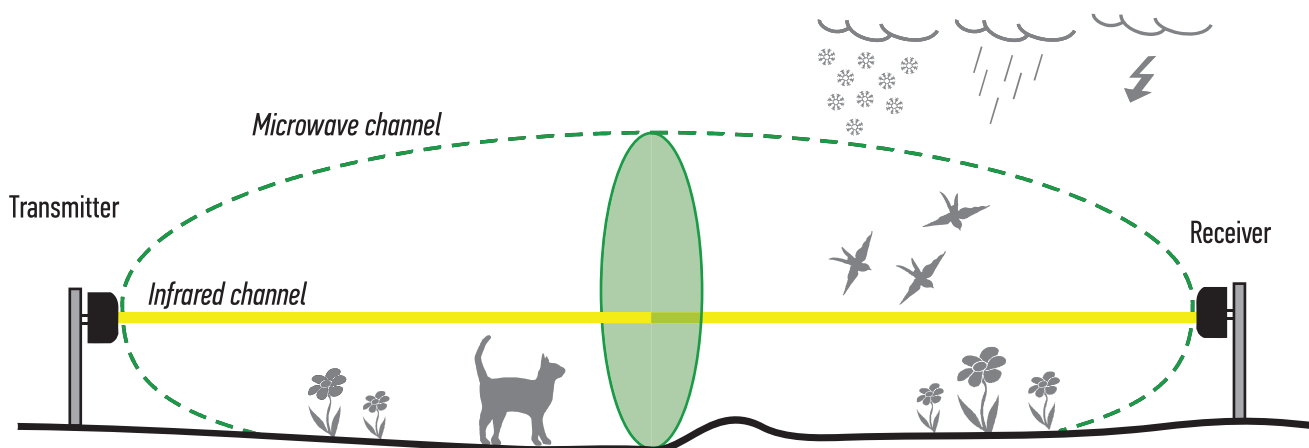
The essential advantage of the sensors is the high interference immunity.

The sensors have USB and RS-485 interfaces for work with special software. The software make it easy to start up the sensors and assures correct configuration of parameters.

In spite of apparent difficulty of the sensors, they are easy to operate. They do not require special knowledge of staff and are not expensive.



Specifications	MIR-B100	MIR-B50
Operational frequency		24,15 GHz
Range	10 ÷ 100 m	5 ÷ 50 m
Width of the detection zone		0,2 m
Number of letters		4
Supply voltage		15...30 V DC
Current consumption		0,05 A
Detection probability		not less than 0,98
Operational temperature		minus 40...+65°C
Housing protection level		IP-55
Alarm output		relay contacts
Interfaces		RS-485, USB and Bluetooth (upon request)
Dimensions		211x138x105 mm
Weight		3 kg



Parameters of the detection zone

- - Microwave channel
- - Infrared channel

## MIR-M30, MIR-M10



The principle of operation is based on the operation of two channels working on two different physical principles of detection: monostatic microwave and monostatic infrared.

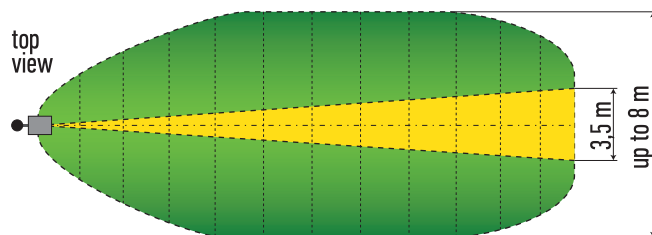
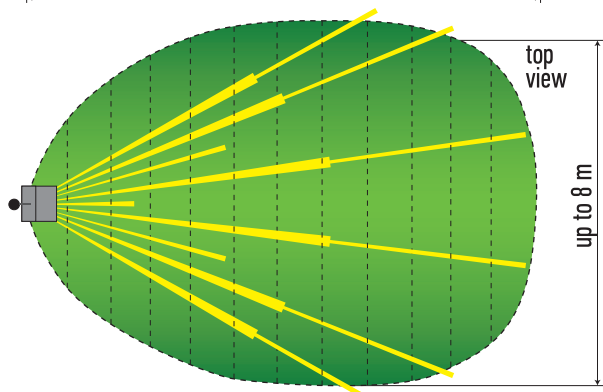
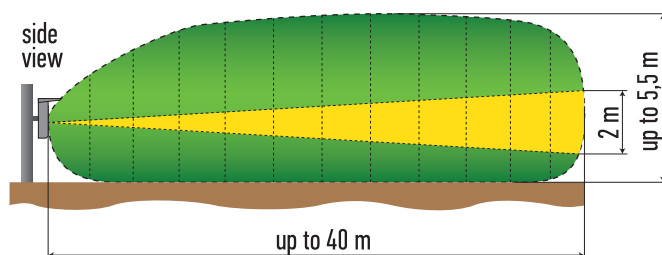
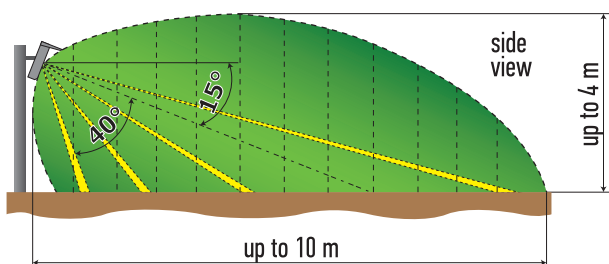
We use the sensor FM-30 for microwave channel of MIR sensors. That is why all the advantages and features of FM are appropriate to MIR sensors, especially:

- using of special software via USB or RS-485 interfaces allows to configure correctly the sensor in-field as well as remotely from the guard room.
- the sensors detection zone is divided into sub zones, every sub zone can be configured separately, any sub zone can be disconnected to make secured passages for people or transport through gates.
- the sensors have 5 frequency letters allowing to install and operate them near each other.

Specifications	MIR-M30	MIR-M10
Operational frequency	9,375 GHz	
Range	up to 40 m	up to 10 m
Width of the detection zone	up to 3,5 m	up to 8 m
Number of sub zones	12	
Number of letters	5	
Supply voltage	9...30 V DC	8...28 V DC
Current consumption	0,04 A	
Detection probability	not less than 0,98	
Operational temperature	minus 40...+65°C	minus 40...+50°C
Housing protection level	IP-55	
Alarm output	relay contacts	
Interfaces (MW channel)	RS-485, USB and Bluetooth (upon request)	
Dimensions	210x135x95 mm	
Weight	1 kg	

The sensors MIR-M10 have fan-shaped detection zone, that is why we recommend to use them for the protection of surfaces.

The sensors MIR-M30 have beam-shaped detection zone, that is why we recommend to use them for the protection of «frontiers».



Detection zone of the sensor MIR-M10

Detection zone of the sensor MIR-M30

■ - Microwave channel    ■ - Infrared channel