

## Product Specification

## M100BR Bicycle Radar

## Detector



The M100BR Bicycle Radar Detector has been designed to uniquely detect the presence of a bicycle within a defined zone and differentiate it from other forms of traffic. The M100BR works in conjunction with the M100 wireless vehicle detection system.

### Wireless with no cable connections

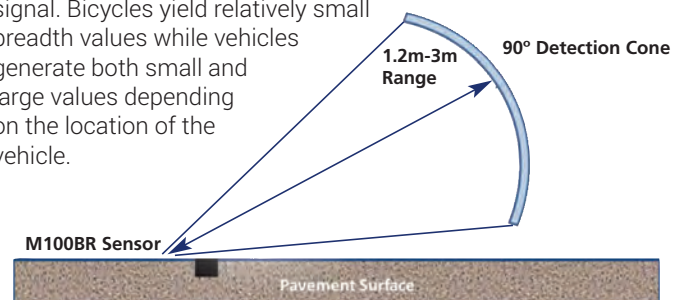
The M100BR sensor incorporates an extremely low power, wide-band radar with secure radio technology. The compact in-ground sensor works using the same principle as any other radar. High frequency RF pulses are transmitted, bounced off a target object, and the return pulses are measured by a time-gated RF mixer. RF reflections are analyzed to produce presence, distance, and motion measurements.

M100BR sensors can be utilised either to detect bicycles within a dedicated bicycle approach lane or bicycles stationary at an Advanced Stop Line. They are simply installed just under the roadway surface with minimal traffic disruption.

M100BR sensors have a configurable detection range between 1m (3') and 3m (10'). The width of a detection zone is approximately 90 degrees and the default range is 2m (6').

### Advanced Radar-Based In-Road Bicycle Detection

M100BR sensors can detect bicycles that are stopped at a stop-line and differentiate between a vehicle and a bicycle. The basic method to differentiate bicycles from vehicles is based on measuring the breadth of the returned RF signal. Bicycles yield relatively small breadth values while vehicles generate both small and large values depending on the location of the vehicle.



### Key Benefits

- Accurate and reliable bicycle detection
- Quick and easy installation
- Minimal lane closure time when installing
- Capable of detecting bicycles and differentiating between vehicles and bicycles
- More cost effective than traditional inductive loops
- No loop tails or slot cutting required
- Vandalism proof

### Key Features

- Works in conjunction with the M100 magnetometer system
- Designed for in-road bicycle detection
- 10 year battery life
- Low power consumption
- More durable than traditional loops
- Up to a 3m detection zone
- Wide band radar detector



### In-Road Detection Zone for Bicycles and Vehicles

Adjustable radar detection zone.

The purple area depicts the sensor detection zone for all vehicles including bicycles.

The green area depicts the sensor detection zone for large vehicles.

The 1.2m and 2m arcs represent the detection distance settings.



### Radio Specifications

#### PHYSICAL LAYER PROTOCOL

IEEE 802.15.4 PHY

#### MODULATION

Direct Sequence Spread Spectrum Offset Quadrature Phase-Shift Keying (DSSS O-QPSK)

#### TRANSMIT/RECEIVE BIT RATE

250 kbps

#### FREQUENCY BAND

2400 to 2483.5 MHz (ISM license free band)

#### FREQUENCY CHANNELS

16

#### CHANNEL BANDWIDTH

2 MHz

#### ANTENNA TYPE

Ceramic patch antenna  
(mounted below top surface of sensor)

#### ANTENNA FIELD OF VIEW

±60° (azimuth & elevation)

#### NOMINAL OUTPUT POWER

+3 dBm

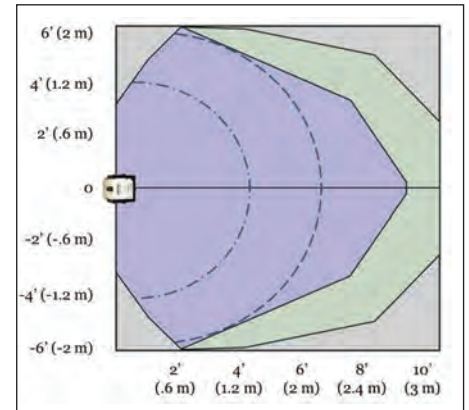
### Integrated System Components

The M100BR works as an integrated part of the M100 wireless vehicle detection system and is compatible with -

M110 Access Point

M115 Repeater Unit

M120 Magnetometer Interface Card



### Specifications

#### POWER SUPPLY

Non-replaceable primary Li-SOCI2 3.6V battery

#### DIMENSIONS

74mm x 74mm x 67mm

#### WEIGHT

0.3kg

#### INSTALLATION CORE SIZE

100mm x 75mm

#### ENVIRONMENTAL PROTECTION

IP67

#### OPERATING TEMPERATURE

-40°C to 85°C (-40°F to 185°F)

#### RADAR SPECIFICATION

##### FREQUENCY

6.3 GHz

##### BANDWIDTH

>500 MHz

##### RADIATED POWER

Within FCC class B limits

##### RANGE

1 metre to 3 metres (selectable)

##### CALIBRATION

Self calibrating

##### SAMPLE RATE

1/2, 1, 2, 4, and 8Hz (selectable)