Technical Description

Users Manual

MW 231 & MW 232

Doppler - Radar Vehicle Detectors

Product Description

The K-Band (24 GHz) Doppler radar traffic detectors of the MW 230 Series are designed for the detection of vehicles moving into or through their field of view in short to medium range.

The standard model MW 231 reacts only to approaching traffic moving faster than the low speed threshold of 4 km/h. An LED signals the activation of the output.

The multi-functional model MW 232 has a number of DIP-switches enabling additional user-selectable functions. The direction discrimination can be selected, so that the detection is depending on the direction. That means the detector reacts only on approaching traffic or on both directions. The minimum speed threshold – 4 km/h or 8 km/h alternatively – can be selected. The timer function automatically activates the output to simulate the arrival of a vehicle if the MW 232 has not changed state for a period of 2.5 minutes.

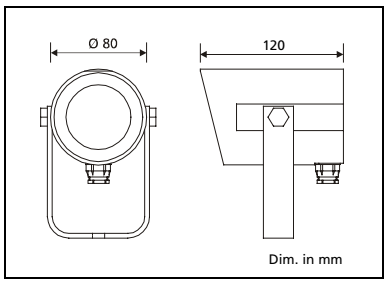
Typical application

Direction dependent detection of vehicles approaching a traffic light to request or extend the green phase.

Mounting and Installation

The detector can be mounted overhead or on a pole on the side of the road. The recommended mounting height is within the range of 1 … 5 m.

Specifications



Mechanical

Case material	aluminium anodised
Weight	app. 820 g

Doppler Radar

Technology	Doppler - Radar
Frequency band	K-Band 24.000 … 24.250 GHz
Detection Range	typ. 30 m
Low speed threshold	MW 231: 4 km/h MW 232: 4 km/h or 8 km/h, depending on setting
Turn-on /turn-off delay time	max. 0.25 s / 0.5 s
EMC Specification	ETS300.339

Electrical

Supply voltage	see Ordering - Information
Power consumption	typ. 90 mA @ 12 V DC or 45 mA @ 24 V AC/DC
Output	
Relay SPDT	250 V AC / 2 A / 60 W
Turn-on time	typ. 1 s from power on
Function indication	red LED on the case front

Environmental

Operating temperature	– 40°C … + 70°C
Humidity	95% RH max.
Sealing	IP 64 splash proof

Electrical Connections

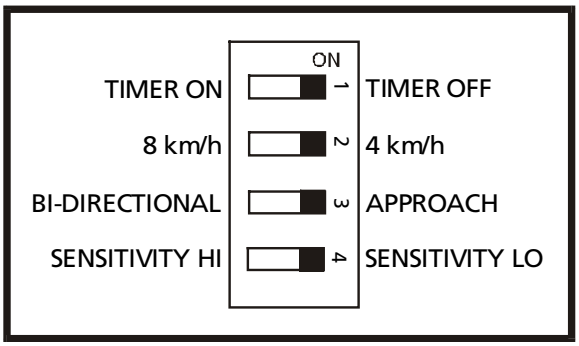
The detector models MW 231 and MW 232 are supplied with a cable of approximately 2.5 m length and with open ends without a plug.

brown	V+ Supply
white	V– Ground
yellow	C Relay
grey	NO Relay
green	NC Relay
shield	Case (MW 232 only)

Relay is shown for detector in operation, output not active.

MW 232 DIP-Switch Configuration

The operating modes and further functions of the Radar detector MW 232 can be selected with DIP-switches. The DIP-switches are accessible after removing of the screw on the backside of the case.



Ordering - Information

MW 2 3 X - X X 9

Detector Type
Standard **1**
Multi-functional **2**

Supply
10.5 … 30 V DC / 24 V AC **8**

Output
Relay SPDT **1**

The data is based on engineering samples and is believed to be representative.
Design and specification changes reserved without prior notice.
More specific information on the products, their installation and application is available on request.

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MW 233

Doppler - Radar Vehicle Detector

Product Description

The K-Band (24 GHz) Doppler radar traffic detectors of the MW 230 Series are designed for the detection of vehicles moving into or through their field of view in short to medium range.

The multi-functional model MW 233 with AC power supply has a number of DIP-switches enabling user-selectable functions. The direction discrimination can be selected, so that the detection is depending on the direction. That means the detector reacts only on approaching traffic or on both directions. The minimum speed threshold – 4 km/h or 8 km/h alternatively – can be selected. The timer function automatically activates the output to simulate the arrival of vehicle if the MW 233 has not changed state for a period of 2.5 minutes.

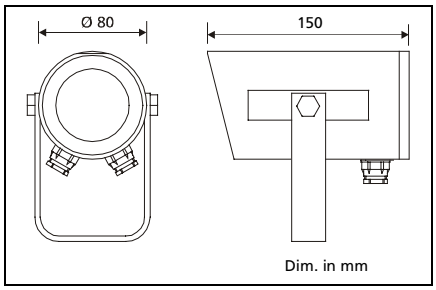
Typical Application

Direction dependent detection of vehicles approaching a traffic light to request or extend the green phase.

Mounting and Installation

The detector can be mounted overhead or on a pole on the side of the road. The recommended mounting height is within the range of 1 … 5 m.

Specifications



Mechanical

Case material	aluminium anodised
Weight	app. 940 g

Doppler Radar

Technology	Doppler - Radar
Frequency band	K-Band 24.000 … 24.250 GHz
Detection range	typ. 30 m
Low speed threshold	4 km/h or 8 km/h, depending on setting
Directional detection	selectable with DIP - switches
Turn-on /turn-off delay time	max. 0.25 s / 0.5 s
EMC Specification	ETS300.339

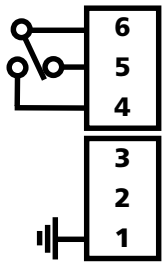
Electrical

Supply voltage	see Ordering - Information
Power consumption	typ. < 1 W
Output	
Relay SPDT	250 V AC / 2 A / 60 W
Turn-on time	typ. 1 s from power on
Function indication	red LED on the case front

Environmental

Operating temperature	– 40°C … + 70°C
Humidity	95% RH max.
Sealing	IP 64 splash proof

Electrical Connections



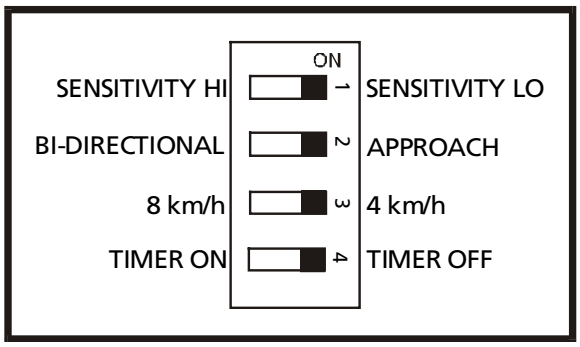
C Relay
NC Relay
NO Relay

P 230/115/48 V AC
N 230/115/48 V AC

Relay is shown for detector in operation, output not active.

MW 233 DIP-Switch Configuration

The operating modes and further functions of the Radar detector MW 233 can be selected with DIP-switches. The DIP-switches are accessible on the terminal board.



Ordering - Information

MW 2 3 3 - X X 9

Detector Type
Multi-functional **3**

Supply
230 V AC **1**
115 V AC **2**
48 V AC **5**

Output
Relay SPDT **1**

The data is based on engineering samples and is believed to be representative.
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MO9062-21

I DESCRIPTION

A K-Band Doppler transceiver consisting of a Gunn Diode oscillator and two Schottky barrier diode mixers assembled into a diecast waveguide package, designed for commercial applications in directional motion sensing.

II SPECIFICATIONS

Frequency:	24.125GHz ± 5 MHz
Output Power:	4.6 mW minimum
Frequency Stability:	1 MHz/°C
Operating Voltage:	+5.0 Vdc ± .15 V
Operating Current:	97 mA max @ +25°C, 110 mA max @ -30°C
Mixer Sensitivity: (6)	-93dBc max for IF bandwidth of 10 - 1000 Hz
Mixer Diode DC Return:	1000 ohms resistor to case ground (Recommended but not supplied)
Mixer Diode/Output Noise: (6)	6 µV Rms max for IF bandwidth of 10-1000 Hz
Mixer Phasing:	60° minimum, 120° maximum
Temperature Range:	-30 to +70°C
DC Bias (Gunn): (2)	Solder Pin
Mixer Output: (2)	Solder Pin
Mixer Output Polarity:	Negative
RF Output:	WR 42 waveguide mates with UG-595/U flange
Power Variation/Temp:	3.0 dB maximum

NOTES

1) Units will be packaged in ESD Safe trays with 40 units per tray.

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2) Maximum solder temperature to pins is 250ºC max for a 5 second duration.

3) Units are extremely ESD sensitive. Parts should only be handled in an appropriate ESD protected manner. Failure to do so may void manufacturer warranty.

4) All parameters of this specification are tested into a calibrated standard Test stand.

5) The filter supplied with this product shall meet the requirements of Drawing 3129: .050 ± .001 thick.

6) As measured at the output of a standard low noise amplifier with a voltage gain of 60 dB. Amplifier bandwidth is 10 Hz to 1000 Hz.