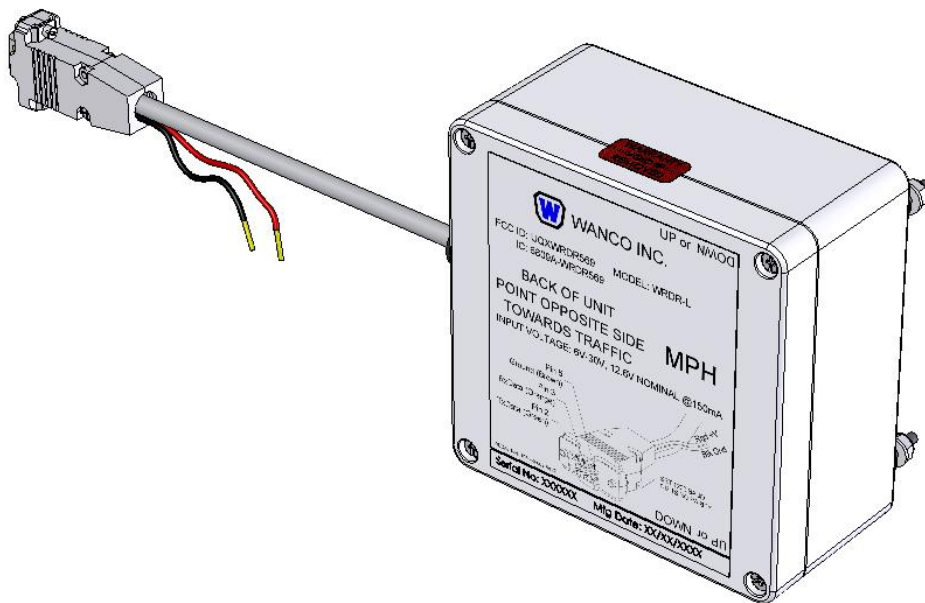




OPERATIONS MANUAL



WRDR-L RADAR HEAD 108569-000



WRDR-L
RADAR HEAD

THIS UNIT IS FULLY ASSEMBLED AND READY TO USE.
NO CONFIGURATION IS REQUIRED.

Thank you for choosing the Wanco Radar Head. Your radar is in a Polycarbonate enclosure suitable for outdoor use and is protected against access of oil, dust and water. The radar has been tested to and complies with FCC part 15 class A. The radar head uses a state of the art modern radar transceiver that offers excellent range detection without false detecting on spurious electronic signals and no configuration is required.

SAFETY

Do not look directly into the radar head when it is powered up. Keep any body part away from the radar beam as much as possible and at a minimum of 20 cm.

FCC/CANADIAN INFORMATION

FCC ID: UQXWRDR569
MODEL: WRDR-L
IC: 6809A-WRDR569

This device complies with Part 15 of the FCC Rules and with RSS-210/Gen of Industry Canada. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Warning: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

The term "IC:" before the radio certification number only signifies that Industry Canada technical specifications were met.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This device must not be co-located or operating in conjunction with any other antenna or transmitter.

NOTE: This modular transmitter must be labeled with its own FCC ID number, and, if the FCC ID is not visible when the module is installed on/inside your device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. This exterior label may use wording such as the following: "Contains Transmitter Module FCC ID: UQXWRDR569" or "Contains FCC ID: UQXWRDR569." Any similar wording that expresses the same meaning may be used.

To obtain service, contact the service department at Wanco Inc. between 7:00 AM – 5:00 PM MST.

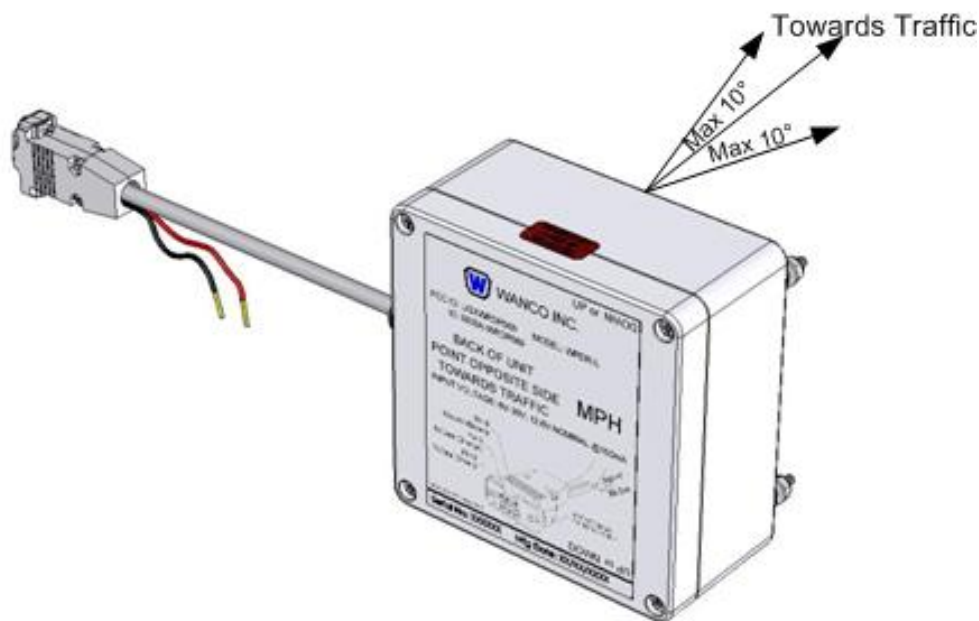


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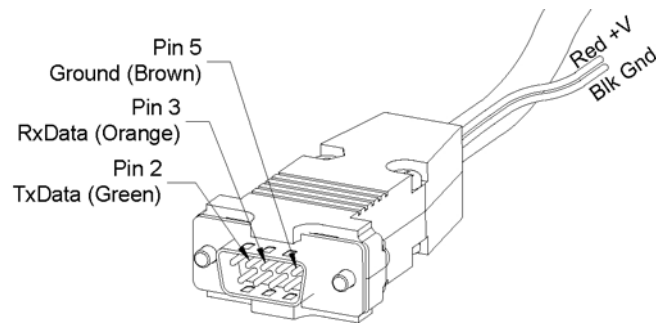
There are no user serviceable parts in the radar enclosure. There is a solid-state fuse that will automatically reset if an over current fault occurs. The unit is polarity protected if it is connected to power incorrectly. Please do not open the enclosure as this could void the warranty. The unit is factory configured for either MPH or KPH as indicated by the label on the back of the unit. Most units are configured for MPH.

INSTALLATION

Your radar head was designed for ease of use and installation and no configuration is required. There are 4 #6 studs to facilitate mounting to a bracket or some other suitable structure. The unit should be secure as possible so that it cannot vibrate. The unit must be pointed straight down the road, with the back side pointed away from traffic as indicated on the label. If the unit is at more than a ten-degree angle to the traffic, either horizontal or vertical, it will start measuring a lesser speed than the actual speed and may not have as much range. See the following figure.



The radar enclosure has a 6-foot cable attached to it to provide power and communications. Connect the flying black lead to ground and the flying red lead to +12V. Connect the male DB9 to a controller board, modem, computer etc. to provide communication. Since the radar acts like a DCE, to connect it to a PC only a gender-bender is necessary not a null modem. The output string is 8 bits no parity 1 stop bit (8n1) 1200 baud in Hexadecimal (Hex) not ASCII. Specifically, the data is (2)(84)(1)(SPEED)(1)(AA)(3). This string is output every .5 seconds. The RS232 port can be connected to a computer or some suitable controller for display of the measured speed or for some other purpose such as speed logging. There is nothing that is configurable through the communications port. The pinout of the cable on the DB9 is shown in the following figure.



Pin #	Direction	Color
2	Transmitted from Radar	Green
3	Received to Radar	Orange
5	Common	Brown
Flying Lead	12.6 V Nominal	Red
Flying Lead	Gnd	Blk

OPERATION

The radar outputs a continuous wave (CW) at 24.125 GHz. Part of the signal that is transmitted from the radar transceiver is reflected back from objects such as moving vehicles. Due to the Doppler effect, the signal received from a moving object is slightly lower or higher in frequency than what was transmitted. This frequency offset is measured to determine the speed of the vehicle. Only the speeds of vehicles that approach the radar head are measured. Vehicles traveling away from the head are ignored. Please note though that in the first minute of operation any direction of movement will display so that a tuning fork can more easily be detected to test the radar. The vehicle with the strongest signal, which is normally the closest to the radar head is displayed. The radar head is capable of measuring vehicles as far as 1000 feet away. The lowest speed the unit can measure is 5 mph and the highest speed the unit can measure is 138 mph.

Specifications

Power Consumption	150 mA @ 12.6V	NOTES
Voltage Range	6V to 30V	Solid state fuse (Resets itself) . Polarity Protected
Temperature Range	-40 to +185 °F ----- -40 to +85 °C	Untested (Storage and Operational)
Type	Detects incoming traffic only	
Interface	RS232 DB9 male	Tx, Rx, Signal Ground, (DCE)
Baud Rate	1200 8 bits No parity	
Size	4.7" x 4.7" x 2.4" ----- 11.9 cm x 11.9 cm x 6.1 cm	L x W x D
Enclosure	Polycarbonate	Resistant to oil, dust and water
Weight	1 lbs	
Mounting	#6 hardware	
Speed range	5 mph – 138 mph ----- 8 kph – 222 kph	Untested at 75-138 mph ----- Untested at 121 – 222 kph
Range	1000 feet ----- 305 meters	5 - 85 mph ----- 8 – 137 kph
Range Variance	300 feet ----- 91 meters	Approximate
Accuracy	+ - 1 mph from 5-40 mph + - 2 mph from 40-100 mph ----- + - 1.6 kph from 8-64 kph + - 3.2 kph from 64 – 161 kph	Untested
Measurement Units	MPH or KPH	Configured at factory only
Horizontal Beamwidth	12°	Of radar beam
Antenna Type:	Planar Array	
Frequency:	24.125 GHz - K band	Of radar beam
Output Power (EIRP)	27 dBm	Of radar beam
Regulatory	FCC part 15 class A Canadian RSS-210	



MANUFACTURER'S LIMITED WARRANTY

WANCO, INC. Warrants to the original user that each product of its manufacture is free from defects in material and workmanship if properly installed, serviced and operated under normal conditions.

Manufacturer's obligation under this warranty is limited to correcting without charge at its factory any part or parts thereof which shall be returned to its factory prepaid within one year after being put into service or 12 months after purchase by the original user, whichever is earlier, and which upon examination shall disclose to the Manufacturer's satisfaction to have been originally defective. In any event, warranty will not extend beyond one year (12 months) from the date of original purchase from WANCO, INC.

This warranty shall not apply to any of the Manufacturer's products which must be replaced because of normal wear, which have been subject to misuse, negligence or accident or which have been repaired or altered outside of the Manufacturer's factory unless authorized by the Manufacturer.

WANCO, INC. makes no warranties with respect to engines or other component parts or accessories not manufactured by the Company, same being subject only to such warranties, if any, as may be made by their respective manufacturers. But WANCO does warrant that it will put forth it's best efforts on behalf of original users of its products to assure that such manufacturer's warranties are satisfactorily performed.

THIS WARRANTY, AND THE MANUFACTURER'S OBLIGATION HEREUNDER, IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, OR STATUTORY, INCLUDING ANY WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, and all other obligations or liabilities including special or consequential damages or contingent liabilities arising out of the failure of any product or part to operate properly. WANCO, INC. shall not be liable for any special, indirect, incidental, or consequential damages whether in contract, tort, under any warranty, or otherwise, beyond the warranty quoted herein for products or parts.

No person is authorized to give any other warranty or to assume any additional obligation on the Manufacturer's behalf unless made in writing and signed by an officer of the Manufacturer.

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