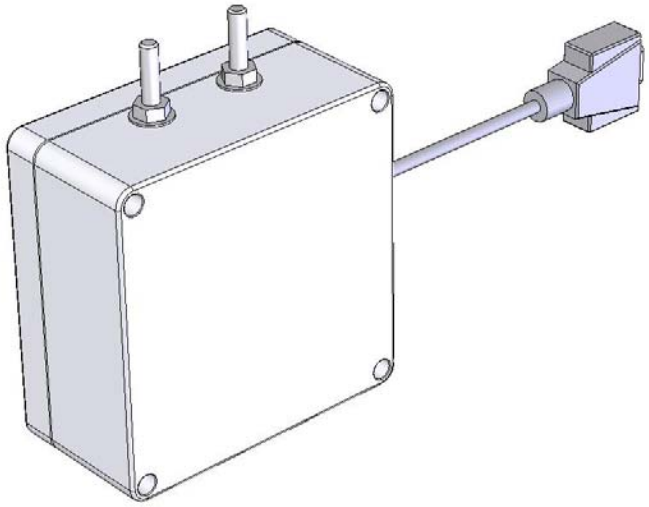
WANCO, INC.

OPERATIONS MANUAL



WRDR

RADAR HEAD

108432-000

WANCO, INC.

WRDR
RADAR HEAD

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

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 incorporates a transistor instead of a diode that offers many advantages including reliability.

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.

FCC/CANADIAN INFORMATION

FCC ID: UQXWRDR432
MODEL: WRDR
IC: 6809A-WRDR432

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 expressively 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.

In the unlikely event you need to obtain service, contact the service department from: 7:00 AM – 5:00 PM MST.

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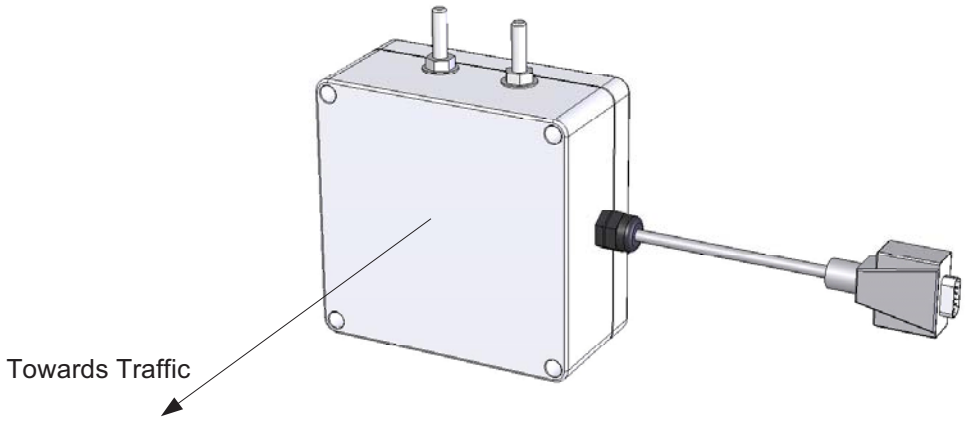
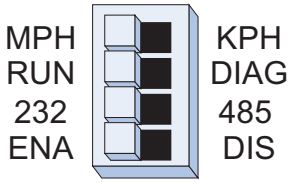
Web-Site: www.wanco.com

INSTALLATION

Your radar head was designed for ease of use and installation and normally there is no need to perform any kind of configuration. There are two ¼ inch mounting bolts to facilitate mounting to a bracket or some other suitable structure. Both mounting bolts should be used since this will make the unit impossible to rotate. The unit should be secure as possible so that it cannot vibrate. The unit is pointed with the lid of the unit away from traffic. The unit must be pointed straight down the road. If the unit is at more than a ten degree angle to the traffic it will start measuring a lesser speed than the actual speed. See the following figure.



The unit has a configurable dip switch. In most cases it will not be necessary to change it, but in rare instances it could be necessary. Remove the lid of the unit to expose the underlying circuit board that contains the dip switch. See the following figure.



Select MPH to display the speed in MPH or KPH to display the speed in KPH. Select RUN for normal operation and select DIAG to output a continuously updated incrementing speed pattern. This is used to test the connectivity and the functionality from the radar head all the way to the display. Make sure to switch it back to RUN after the test is complete. Select 232 to use the RS232 interface, which is the normal setting. Select 485 to select the RS485 interface. Make sure the appropriate cable is in use for the corresponding selection. Select ENA to enable the transceiver, which is the normal selection. Select DIS to disable the transceiver.

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

Pin #	Name	Direction
2	Receive Data	Transmitted from Radar
3	Transmit Data	Received to Radar
5	Signal Ground	Common

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. The vehicle with the strongest signal, which is normally the closets to the radar head is displayed. The radar head is capable of measuring vehicles as far as 700 feet away and in most cases will measure vehicles up to 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	130 mA @ 12V	NOTES
Voltage Range	6V to 30V	
Temperature Range	-40 to +85 °C	Untested (Storage and Operational)
Type	Detects incoming traffic only	
Interface	RS232 DB9 male	Tx, Rx, Signal Ground, (DCE)
Size	4.7” x 4.7” x 2.4”	L x W x D
Enclosure	Polycarbonate	Resistant to oil, dust and water
Weight	3 lbs	
Mounting	(2) ¼ bolts	
Speed range	5 mph – 138 mph	Untested at 75-138 mph
Accuracy	+- 1 mph from 5-40 mph +- 2 mph from 40-100 mph	
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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