

OPTIONAL EXTRAS

AGD part number MS-103 is an effective demonstration tool for the AGD330. Once installed on suitable laptop or PC the user will see a speedometer display on the screen. As the AGD330 detects approaching vehicles, the radar will send the speed of the vehicle in mph or kph to the pc and display the speed on the speedometer. A target simulator - AGD932 to verify correct operation of the radar at specific low speed thresholds is also available. Please contact AGD Systems for further information.



SERIAL CONNECTION

Default BAUD rate	115200
Data bits	8
Parity	None
Stop bits	1
Flow control	None

COMMAND LIST

Users can communicate to the radar via hyperterminal using the set of commands detailed below. Entry of these commands is not case sensitive. For further assistance please contact AGD Systems technical support or refer to technical advice note TAN017.

Command	Description	Default	Range	Comments
AGD	Shows detector type & version information	N/A	N/A	Sends Livewire message
HELP	On-line help function	N/A	N/A	Sends help message
*BAUD	Baud rate for RS422	115200	9600 / 115200	
*CN	Range for count function	650	500 - 1500	500 = max range, 1500 = min range
*DETS	Number of detections	0	N/A	Detections \ time since last detect
*HELP	On-line help function	N/A	1-3	*HELP-1, *HELP-2 etc
*LANE	Lane number	1	1-32	Lane number is part of output message type 12
*LIFE	Lifetime figures	0	N/A	Days, hours, minutes, seconds, resets
*MM	Output message mode	2	1-3	1 = speed of fastest target 2 = speed of longest track 3 = average speed of longest track
*MONITOR	Monitor timeout	4320	30-43200	In minutes: 4320 = 72 hours
*MS	Output message type	0	0-12	0 = none 1 = DCFMSxxx @ 20 fps 2 = dd @ 20 fps 3 = *Sddd @ 20 fps 4 = DCFMSxxx @ 10 fps 5 = dd @ 10 fps 6 = *Sddd @ 10 fps 7 = DCFMSxxx @ 5 fps 8 = dd @ 5 fps 9 = *Sddd @ 5 fps 10 = DCFMSxxx in single shot 11 = dd in single shot 12 = speed and count message
*OC	Trigger speed for opto output	10	10-120 mph 16-192 kph	Units set by switch 1 Speed is overridden by rotary switch If units = mph, 10-120 mph If units = kph, 16-192 kph
*ON	Range for opto trigger output	1500	500-1500	500 = max range, 1500 = min range Range for detections with opto trigger
*REBOOT	Reboot the detector	N/A	N/A	LED flashes on start-up independent of switch 4 setting
*SC	Target speed cutoff	10	10-120 mph 16-192 kph	Speed cut-off for speed outputs Units set by switch 1 If units = mph, 10-120 mph If units = kph, 16-192 kph
*SINCE	Time since last reset	N/A	N/A	Days, hours, minutes, seconds
*SN	Range for speed mode	1500	500-1500	Values cleared on reset \ reboot \ power-up
*VER	Outputs version information	N/A	N/A	500 = max range, 1500 = min range

Note: 1 mph = 1.6093 Km/Hr

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AGD330

IN-SIGN K-BAND DOPPLER RADAR DETECTOR

Customer Information

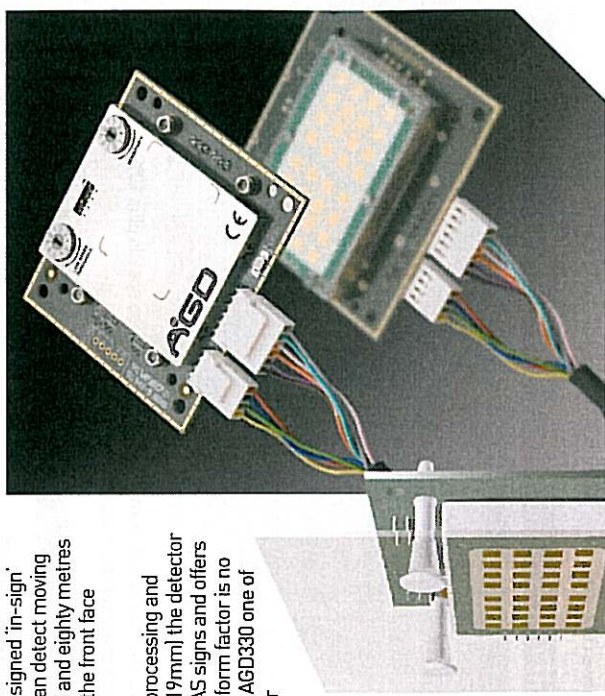
12Vdc

GENERAL

The AGD330 is a compact purpose designed 'in-sign' K-band Doppler radar detector that can detect moving vehicles up to a range of one hundred and eighty metres from the sign when mounted behind the front face (typically polycarbonate) of the sign.

Incorporating state-of-the-art radar processing and benefiting from a very thin profile, (<19mm) the detector is easily incorporated in a variety of VAS signs and offers opto isolator and RS422 outputs. The form factor is no more than 72mm square making the AGD330 one of the most compact radars available for this application.

The radar features a number of user adjustable detection parameters via a set of rotary switches or alternatively via the RS422 interface. Connection to the host system is via an interconnect power and data cable set comprising a six way and four way connector with free flying leads. The assembly is conformally coated to ensure maximum environmental resistance and longevity and the product is fully ROHS compliant.



FCC ID: WHAGD330-101
This device complies with Part 15 of the FCC Rules. 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.

Changes or modification to this equipment, not expressly approved by AGD Systems Ltd, may void the user's authority to operate this equipment including interference that may cause undesired operation.



Restriction on Hazardous Substances





ELECTRICAL CONNECTIONS

Cable connections for the AGD330 in-sign radar are as detailed. The current drawn in non detect state is 64mA typical at 12Vdc.

SINGLE CABLE 12V DC SUPPLY WIRING

Pin No.	Wire Colour	Function	Power Off	Power On - No Detect	Power On - Detect
1	Red	+12V dc (9.6 - 15V)	-	-	-
2	Black	0V dc	-	-	-
3	Green	Earth / Ground	-	-	-
4	Blue	Opto Contact	N/C	N/O	N/C
5	White	Opto Common	-	-	-
6	Yellow	Opto Contact	N/O	N/C	N/O

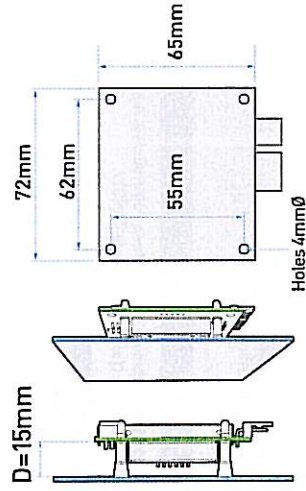
4 Way Plug	Detector Connections	3rd Party Connections
1	Red	TXV/TX+
2	Blue	TXZ/TX-
3	Green	RBX/RX-
4	Yellow	RXA/RX+

Please see AGD part number MS-115 for recommended USB-Serial Converter.

INSTALLATION

Installation of the radar within the sign should be in accordance with the table detailed below which specifies the spacing (D) of the radar module pcb assembly from the inside front surface (typically polycarbonate) of the sign to provide optimum radar performance. Standard fixing of the radar is based on a set of four mounting holes. In the instance of different thickness front-panel materials customers are advised to contact AGD Systems for further information and technical support.

The relatively wide beam profile of the K-band radar module ensures good detection coverage of single or dual lane approaches with relatively little adjustment of the sign in relation to the direction of approaching targets. Mounting of the sign is recommended at between two and five metres from the ground (optimum 3m).



Front screen material thickness	Recommended Spacing D	Comments
0.5mm	15mm +/- 1mm	Spacing for 0.5mm material is not critical
1.0mm	15mm +/- 1mm	
2.0mm	15mm +/- 1mm	Spacing for 4mm material is not critical
3.0mm	15mm +/- 1mm	
4.0mm	15mm +/- 1mm	
5.0mm	15mm +/- 1mm	
6.0mm	15mm +/- 1mm	

USER FEATURES

Adjustment of several detection parameters is possible via two rotary switches and a set of DIP switches on the radar. These include the low speed threshold (LST), sensitivity or range and enabling of access to speed outputs and vehicle data from the radar via an RS422 interface.

There are nine selectable low speed thresholds from the range detailed below which can be selected by adjusting rotary switch one. The zero position allows customer

specific programming of the LST outside of these values to within one mph/kph using the RS422 serial interface. The LST can be set in either mph/kph by appropriate setting of switch one on the 4-way DIP switch per the second table.

Testing of the set low speed threshold is possible by means of a target simulator available separately from AGD Systems.

ROTARY SWITCH 1 - TEN POSITION

BCD Switch Position	Low Speed Threshold (mph)	Low Speed Threshold (kph)
0	As stored in EEPROM	As stored in EEPROM
1	5	8
2	20	33
3	24	44
4	30	55
5	35	66
6	40	77
7	46	88
8	50	99
9	57	110

These speeds provide zero tolerance LST's of 20,30,40 & 50mph and values for these speeds plus 10%±2mph. The 5mph LST is to allow easy functional checking of the system.

DIP SWITCH - FOUR POSITION

This switch changes the mode of the detector and allows alternative functions to be accessed. In all cases, setting the switch to the 'OFF' position disables the appropriate

function. The switch functions are defined as follows with the default factory setting as 0001.

Switch Number	Selectable Function	Comments
1	LST in mph \ kph	Off = mph, On = kph
2	Comms enable \ basic	Off = No serial port, On = Serial port enabled
3	Test Mode	Provides known speed outputs on RS422
4	Detect LED enabled	Off = no LED, On = illuminate detect LED

ROTARY SWITCH 2 - TEN POSITION

The radar sensitivity or range can be easily adjusted for specific site topography and local conditions via rotary switch two. Subject to optimum mounting of the radar as per the installation instructions above the range can typically be adjusted from a maximum (setting nine) of approximately

one hundred and eighty metres down to forty metres (setting one) for low speed sites e.g. 20mph zones outside schools where this will be preferred. Adjustment of the radar sensitivity can also be achieved via the RS422 interface if the rotary switch is set to the 'zero' position.