AZIMUT R-158 Ultrasonic Sensor Combined With Monitor and Camera User Manual

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AZIMUT R-158 Ultrasonic Sensor Combined With Monitor and Camera

Specifications

- Model: R-158
- Components: Ultrasonic sensor, monitor, camera
- Compliance: FCC Part 18, European regulation R158
- Monitor: 7-inch TFT LCD monitor model AVMTM70AC
- Features: Active safety system, ultrasonic sensors, high-definition cameras, TFT LCD monitor
- Alert Range: Up to 2.4 meters

Product Usage Instructions

Introduction
The Azimut R158 ultrasonic sensor combined with a monitor and camera is designed to enhance safety in commercial vehicles. The system includes advanced ultrasonic sensors, high-definition cameras, and TFT LCD monitors for a comprehensive safety solution.

Components

1. Ultrasound sensors
2. Monitor – 7-inch TFT LCD monitor model AVMTM70AC
3. Camera

Features
The Azimut R158 solution offers different variants (basic, standard, premium) with intelligent ultrasonic sensors providing visual and audible alerts up to 2.4 meters away for commercial vehicles.

Installation

Ultrasound sensors

1. Choose and mark installation locations.
2. Sensor Installation – Suspended sensor: Mount the sensor at least 45cm from the ground when the vehicle is fully loaded.
3. Adjust the sensor angle using sensor sleeves in the installation kit for optimal performance.

FAQ

Q: What should I do if the monitor does not activate automatically when in reverse gear?
A: Check the wiring connection to ensure proper installation. If the issue persists, consult the user manual for troubleshooting steps.

- This device complies with part 18 of the FCC Rules.
- This equipment has been tested and found to comply with Part 18 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.

- CAUTION: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the product.
- This equipment generates , uses and can radiate radio frequency energy and , if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.However,there is no guarantee that interference will not occur in a particular installation . If this equipment does cause harmful interference to radio or television reception , which can be determined by turning the equipment off and on , the user is encouraged to try to correct the interference by one or more of the following measures: Reorient or relocate the receiving antenna . Increase the separation between the equipment and receiver. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected. Consult the dealer or an experienced radio/ TV technician for help."

INTRODUCTION

This active safety system for vehicles, approved according to European regulation R158, is designed to significantly improve safety in commercial vehicles, such as vans, motorhomes and heavy vehicles. This system incorporates advanced ultrasonic sensors, high-definition cameras and TFT LCD monitors, offering a comprehensive and reliable solution.
The Azimut R158 solution offers different variants depending of the level of features that are added, being all of these variants compliant with the new R158 regulation:

- Basic solution (reference AVMVTCB126B): includes ultrasound sensors and buzzer
- Standard solution (reference AVMTS73S): includes camera and monitor
- Premium solution (reference AVMTR1581): includes camera, monitor and ultrasound sensors

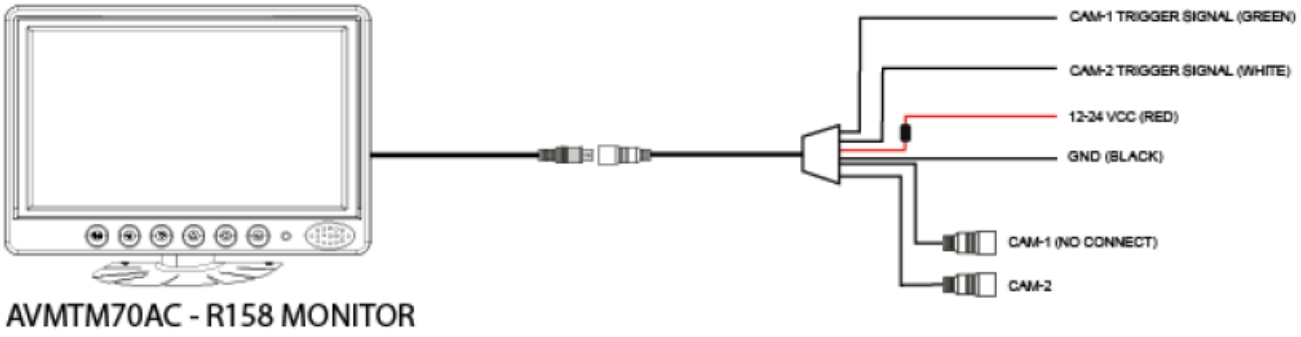
The specific components that compose the packs are:

- CS30L – AHD camera
- AVMT70AC – 7″ LCD digital monitor, 1024×600 pixels, with speaker
- Rear parking ultrasound system with 4 sensors plus buzzer
- The heart of the premium solution is the AVMTCB126B intelligent ultrasonic sensor, specially developed for commercial vehicles. This sensor provides visual and audible alerts truth a BUZZER that allow the driver to detect objects at up to 2.4 metres. A distinctive feature of this sensor is the ELM function, which memorizes certain objects such as spare tyres to avoid false alarms, thus improving the accuracy and reliability of the alerts. In addition, it allows mounting options with 4°, 8° and 12° angles, facilitating versatile installation while maintaining optimal performance.
- The detection technology is complemented by the CS30L AHD camera, designed specifically for AVM systems. This camera is small and compact, but offers an impressive 1.2 megapixel resolution, guaranteeing clear and detailed images. With a horizontal field of view of 190 degrees and a vertical field of 140 degrees, this camera ensures wide coverage of the vehicle's surroundings, even in low-light conditions, thanks to its sensitivity of 0.1 lux. The camera's robustness is evidenced by its ability to operate in a range of extreme temperatures and its IP68 rating, which makes it resistant to water and dust.
- The 7-inch TFT LCD monitor model AVMTM70AC is the perfect complement to this system. Designed to activate automatically when reverse gear is engaged, this monitor offers high resolution and superior image quality, thanks to its digital panel. With the option to select video signals using the "CAM SELECT" button, the monitor provides flexibility
- and ease of use. Equipped with a day and night sensor for automatic brightness and contrast adjustments, as well as a sun visor and an integrated speaker, this monitor ensures clear and accurate viewing in all lighting conditions.
- The active safety system not only provides a noticeable improvement in driver and passenger safety, but also stands out for its reliability and durability. The system components are designed to be water and dust resistant, and to operate in a wide temperature range, ensuring consistent and reliable performance in any situation.

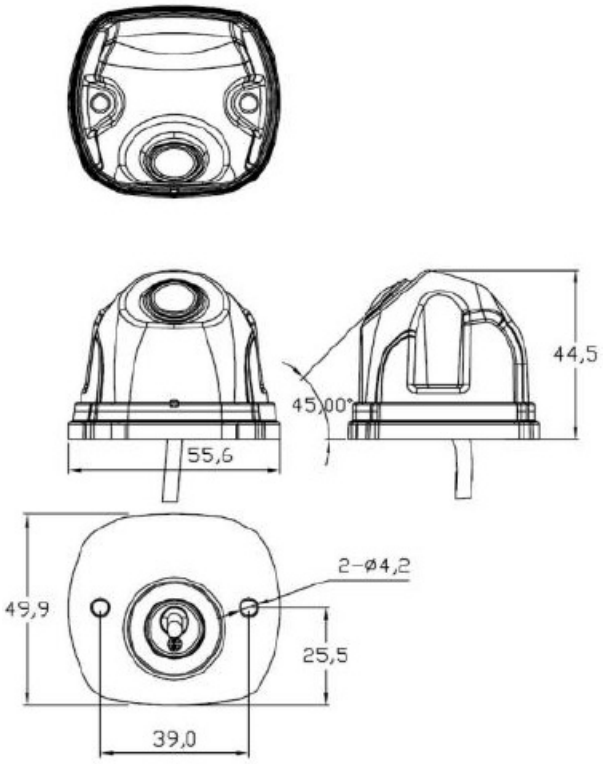
COMPONENTS

Ultrasound sensors

Monitor

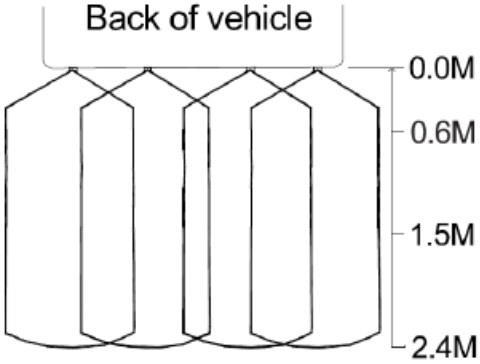


Camera



FEATURES

The Azimut R158 solution is composed of different componentes depending on the variant to be chosen (basic, standard or premium).
The intelligent ultrasonic sensor is designed for commercial vehicle such as vans, motor-homes and heavy duty vehicles in combination with a rear-view camera and a monitor.
The ultrasound sensors provide active warning with visual and audible beeping alerts, alert you to objects as far as 2.4M.



* Detection pattern for reference only

Distance	Alarming Sound
0 – 0.6m	Constant sound
0.6m – 1.5m	1/4 SEC intermittent beep
1.5m – 2.4m	1 SEC intermittent beep

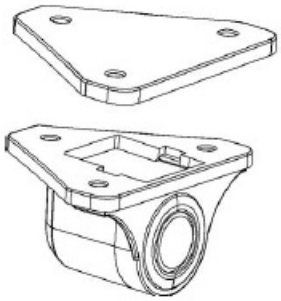
What's more, it's added to ELM function which can memorize certain objects like backup tires and avoid them from being detected. There are 4°/8°/12°sleeves can be chosen, allowing lower mounting while still providing an excellent performance.
The monitor allows to connect up to two cameras and two electrical signals to control which camera is viewed on the monitor. In the R158 solution only one camera is necessary. This camera is in charge of capturing the rear view image and give a 180º view to the driver, facilitating his manoeuvrability.

INSTALLATION

Ultrasound sensors

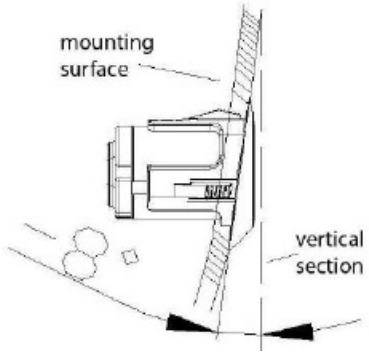
- Choose And Mark Installation Locations.
- Choose a suitable location, measure the height to the ground and then mark the location.

Sensor Installation – Suspended sensor:
It's strongly advised to mount sensor at least 45cm from the ground (when vehicle is fully loaded). Insert sensor into mounting housing, put rubber pad in place and use screws to fix the sensors onto vehicle.

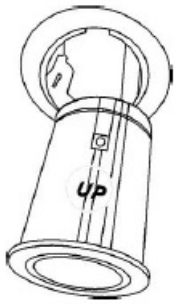


Measure the angle of installation location.Check below table and use sensor sleeves in installation kit to adjust the sensor to optimized angle.

Mounting Height	Optimized Sensor Angle
30cm	9°~14°
40cm	6°~11°
50cm	1°~6°
60cm	-4°~1°



There are three kinds of (4° /8° /12°) sleeves to choose from. For example, for a location with a 50cm mounting height and -8° angle against vertical section (as shoeed in below picture). Then the computing method is: low limit angle (1°) <sensor sleeve angle+mounting position angle (-8°)high limit angle(6°)
So it is cleat that 12° sensor sleeve is needed to adjust sensor to the optimized angle.



Caution! It is important to install the sensors with the mark “UP” upside. In case of a wrong installation, the system may present malfuntion.
Drill 24mm hole, push sensor sleeve into the drill hole. There’s a marking on sensor bracket, please make sure this marking faces upward. Then insert sensor into the sleeve.

Control Box Installation
Use the velcro on control box to stick it in a flat locat ion, make sure the sensor cables are long enough to reach the control module.

Buzzer
When buzzer is connected to system,it will indicate obstacle distance as below:

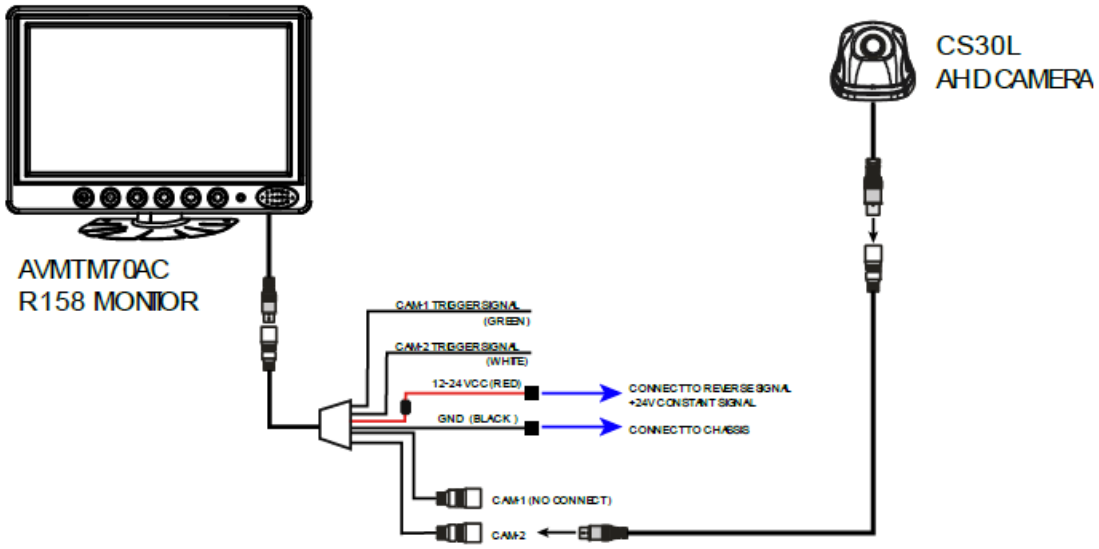
- 0-60cm:constant sound, LED light colour is red
- 60-150cm:fast beeping, LED light colour is yellow
- 150-240cm:slow beeping, LED light colour is green

Buzzer volume can be adjusted between Hi, Low and Off, by using the switch on buzzer.

Monitor
The monitor can be installed in several placements on the dashboard of the vehicle following these requirements:

- Secure the monitor in such a way that it can not become loose under any circumstances (sudden braking, accidents) and cause injuries to the occupants of the vehicle.
- Do not attach the monitor in the area that may be used by an airbag, as this could cause injury if the airbags are triggered.

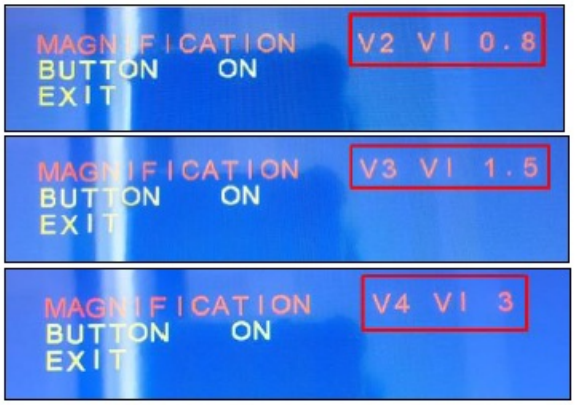
- Do not submerge the components in water, they are not waterproof.
- The monitor may not impair your vision when driving.
- Do not operate the components if the housing has been damaged. Connect it to the correct voltage.
- The picture quality can be impaired in the vicinity of electromagnetic fields. For this reason do not mount the monitor near loudspeakers.



How to configure the field of view of the AVMTM70AC monitor, for operation in compliance with R158:
The monitor AVMTM70AC allows to be used in different applications, so it needs to be configured for its specific function. To comply with the regulations, and for the image to show the proper field of view (FOV), follow the instructions to properly configure the monitor:
Note: The monitor is pre-configured from the factory, to display the CLASS V (for left-hand drive vehicles) field of view (magnification), on its V1 input.
Important! The configuration of the appropriate field of view for compliance with R158 will depend on the installation height of the CLASS VI camera. To do this, it must be configured accordingly.

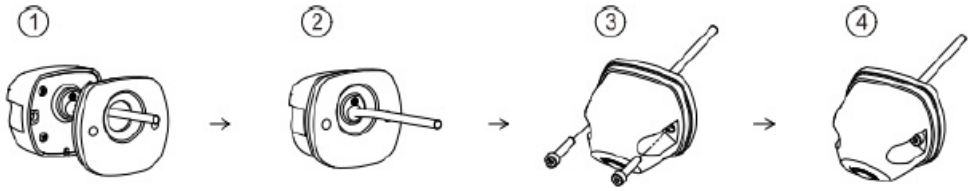
1. With the monitor turned on showing the V1 video input, press and hold the MIR/NOR side button until the MAGNIFICATION menu appears:

2. By pressing the MENU button on the front panel, select the desired magnification. In this case, it must be:
    - For CLASS VI field of view, and with the camera mounted at 0.8, 1.5 or 3 meters from the floor (as the case may be):



- Once the desired field of view (MAGNIFICATION) has been defined, select EXIT to exit the settings menu. The monitor will be set up and ready for use

Camera
The camera has to be installed between 1.5 to 3.5 meters height and centered on the rear side of the vehicle. Ensure connecting CMOS camera with a voltage filter tube, avoiding to burn off the camera.



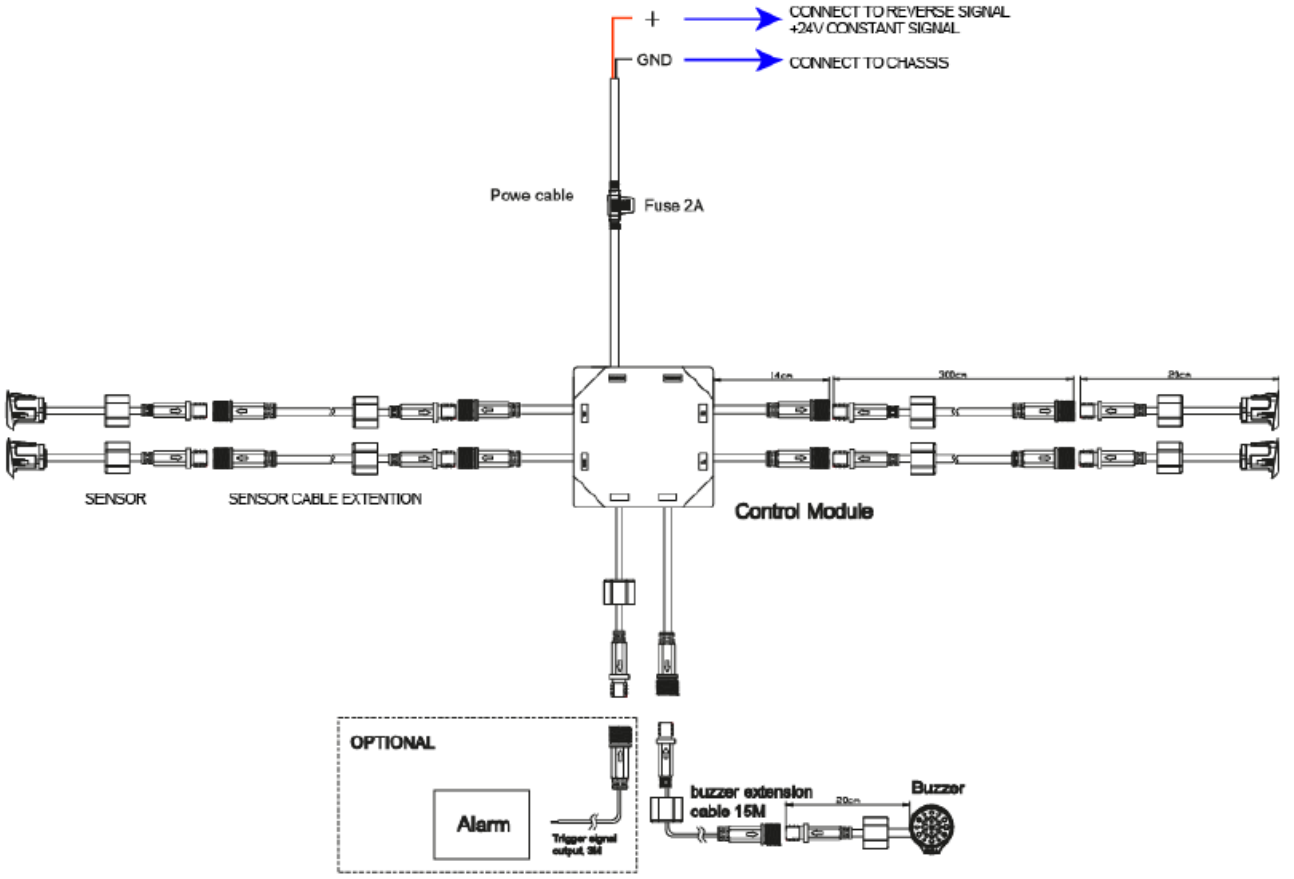
1. Place the camera into the gasket and adjust and align it as appropriate.
2. Fix the camera gasket on the vehicle firmly with screws.
3. Installation finished.
4. Attach the camera cable to extension cable.

Notes: There several gaskets you can choose to adjust camera angle.

After installation:

- Check the function of the camera after you have connected it to a monitor.
- Align the camera using the image on the monitor to help you: It’s suggested that the edge of front bumper can be displayed on the screen.
- Tighten the four fastening screws of the camera bracket.
- Setting for contrast and brightness can be made on the monitor.

Ultrasonic sensor installation



The red wire is connected to positive 12/24V, to the REVERSE SIGNAL (continous positive meanwhile reverse gear is connected). The black wire is connected to ground .
No calibration or additional configuration is required in the installation process, only the correct connection of the cables as described in the diagram above is enough to install the system, and be sure to install the ultrasonic sensor in the correct orientation.

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Documents / Resources

	AZIMUT R-158 Ultrasonic Sensor Combined With Monitor and Camera [pdf] User Manual AVMTR1581, AVMTS73S, AVMVTCB126, R-158 Ultrasonic Sensor Combined With Monitor and Camera, R-158, Ultrasonic Sensor Combined With Monitor and Camera, Sensor Combined With Monitor and Camera, Monitor and Camera

References

- User Manual