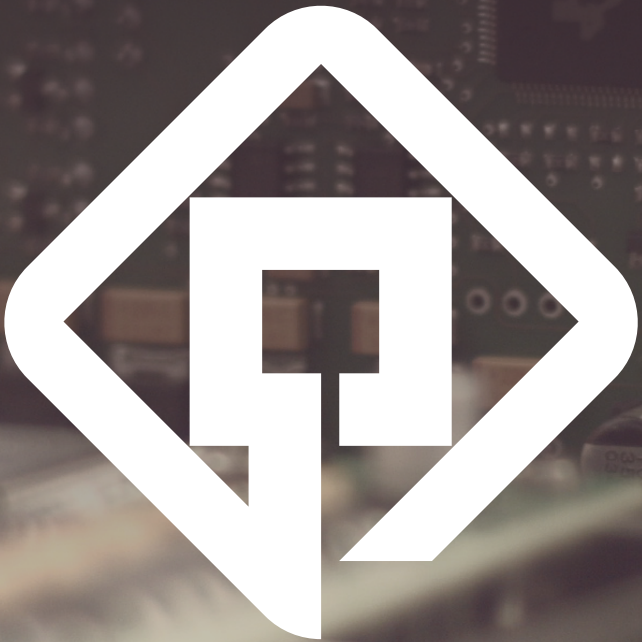
ATTINGIMUS RADAR



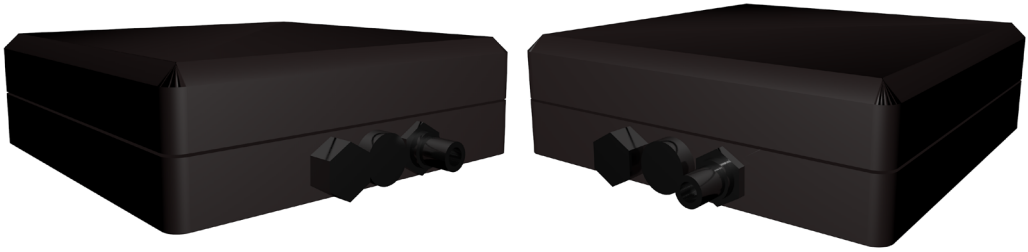
AT-CAS50-1190S

AT-CAS50-1190S

March 2013 V1

COLLISION AVOIDANCE RADAR SYSTEM SET

Can be used as a stand-alone or in a master & slave set



FEATURES

- Pre-configured zones
- Detection of Moving & Stationary objects
- Serial RS422 output
- Approaching vehicles are more sensitive
- ETSI 300 / 440 compliant
- Easy to install
- Strong robust housing
- **Master & slave functionality**

The AT-CAS50-1190S is our Serial: RS-422 output anti-collision radar unit. This specific radar works as a set. It detects objects in six pre-defined zones. Information on the detected objects is presented in a telegram sent over the serial line output. The radar will present the range of the nearest targets in the RS-422 telegram. to set up a light weighted compound security.

GENERAL DESCRIPTION

The AT-CAS50-1190S radar set consists of a combination of a left and a right radar module. This master slave system should be installed at the back of a vehicle. The purpose is to detect moving and stationary obstacles behind the vehicle and to warn the driver on a monitoring system. The radar outputs a serial telegram with the detected target information. The system works in the free 24.125GHz ISM-band.

APPLICATION

The AT-CAS50-1190S radar set is standard configured for Vehicles with a relative large width (like trucks). The width of the vehicle setup for the radar, can be customized. The radar combines in an intelligent way the measurements from the left and right radar to create a rectangular detection field. The right radar module is the master unit with the RS422 interface.

GENERAL TECHNICAL DATA

The user's guide consists of the following chapters:

- Supply voltage: 9 to 30V (secured against polarity change)
- Supply current: 130mA (typ.)
- Output voltage (RS422): 5V (diff.)
- Output current at RS422 outputs is short circuit proofed
- Output resistance (RS422): 136Ohm Readout period: 71ms
- Transmit frequency: 24.000 – 24.250GHz
- Max. transmit power: 20dBm (EIRP)
- ETSI 300 / 440 compliant with 250MHz bandwidth
- Antenna beam: 11° x 90° (+/-5,5° x +/-45°)
- Detection range: 0.2m...30m (configurable)
- Vehicle width: 2m...4m (configurable)
- Sensitivity: Ability to detect a person of average child size
- Resolution: +/- 20cm
- Waterproof and vibration proof

HOUSING SPECIFICATIONS

- Material Bottom: ALg, black anodized
- Material Cover: POM-Plastic black colored
- Dimensions (lxwxh): 100 x 100 x 42 (mm)
- Mounting possibility: 4x M4 holes at the back side
- Mounting possibilities: 82 x 82 mm in square

ENVIRONMENTAL SPECIFICATIONS

- Housing and connectors: Rated IP67, waterproof and vibration proof
- Operating temperature: -20° to +60°
- Storage temperature: -30° to +80°C

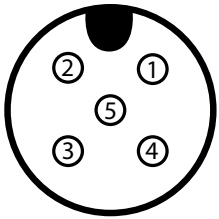
COMMUNICATION INTERFACE

The radar system has the following interfaces:

- Power supply +9 to 30V (brown wire)
- GND (ground, blue wire)
- RS422 serial interface; A-output (black wire)
- RS422 serial interface; B-output (white wire)

The circular connectors used are industrial standard, rated IP67.
The four pin connector type is the GS04M12x1,5VA or the five pin connector type is the GS05M12x1,5VA

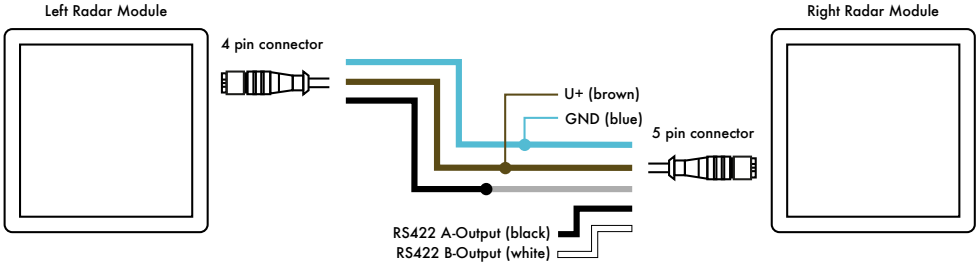
3- to 5-pin



the colors of the core refer to the chapter core assignment. Euro-standard EN 50044

1 brown
2 white
3 blue
4 black
5 grey

The complete system consisting of 2 radars should be wired together in the following way:



READOUT TELEGRAM

The RS422 communication interface output has the following specification:

• Interface specification: 9600,8,N,1 After switching on the power to the radar, a periodic readout will start every 71ms.

Readout Telegram consists of:

1. **Byte: 7eh const.**
2. **Byte: 5eh const.**
3. **Byte: 8eh const.**
4. **Byte: 9eh const.**
5. **Byte: status byte**
6. **Byte: distance of the closest lying obstacle of the right radar (in dm) (unsigned 8bit integer)**
7. **Byte: distance of the closest lying obstacle of the left radar (in dm) (unsigned 8bit integer)**
8. **Byte: zone (0,...,5)(unsigned integer)**
9. **Byte: CRC (lower byte)**
10. **Byte: CRC (higher byte)**

The status byte gives information on whether the self-test of the radar system is fulfilled or not. If all bits of the status byte are 0, then the radar has on 'OK' status. The 6th and the 7th byte show the separated single distance values of the radars. The 8th byte is a readout which is calculated using the values of both radars. The 9th and 10th byte is a real 16 bit CRC value according CCITT standard.

The 6 zones are defined as follows:

0: no obstacle
1: obstacle in 0...1,6m
2: obstacle in 1,6...2,4m
3: obstacle in 2,4...3,2m
4: obstacle in 3,2...4m
5: obstacle in 4...4.8m

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ATTINGIMUS RADAR