

ATINGIMUS RADAR



AT-SOG75-1111-P

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March 2015 V1

SPEED OVER GROUND MEASUREMENT RADAR PULSED OUTPUT



FEATURES

- Accurate speed measurement
- Direction of speed
- ETSI 300 / 440 compliant
- 250 MHz Bandwidth
- Pulse output
- Telegram every 10 ms
- Minimum speed of 10cm per second

GENERAL DESCRIPTION

The “AT-SOG75-1111-P” speed over ground radar is designed to be mounted on a vehicle itself. Normally spinning of wheels etc. create inaccurate speed measurements.

Using this Attingimus radar unit on a vehicle will provide the accurate speed measurement you need. Every 10 ms you will get speed and direction of speed. The speed over ground corresponds with a pulse frequency rate. Filtering on signal strength and distance to the radar makes this a very robust speed measurement radar.

APPLICATION DETAILS

Every meter of travel distance corresponds to 16 pulses. This is a default value which is configurable by Attingimus or the customer. The pulses have a 50% duty cycle. For example: At a speed of 10 m/s, the pulse frequency is 160 Hz. The height of the pulses in volt equals the supply voltage. By measuring only the Doppler and therefore speeds at a specific range, reliable speed measurements are assured. A relatively small speed can already be measured; the minimum speed is 10 cm per second.

TECHNICAL DATA

General technical data

- **Supply voltage:** +10 to 30V, 12V (typ.)
(secured against false polarity)
- **Supply current:** 140mA (typ.)
- **Transmit frequency:** 24.000 – 24.250GHz
- **Maximum transmit power:** 20dBm (EIRP)
- **ETSI 300 / 440 compliant with**
250MHz bandwidth
- **Antenna beam:** 11° x 11° (+/-5,5° x +/-5,5°)
- **Pulse Output:** 16 pulses per travelled
meter (default value, user configurable)
- **Pulse Output Voltage:**
equals Supply Voltage
- **Sensitive distance:** 1.5m...3.5m
- **Speed area:** -80m/s...+80m/s
- **Minimum speed:** 0.10m/s
- **Accuracy:** 0.5%
- **Service connector:**
Output resistance (RS422): 136Ohm
Output voltage (RS422): 5V (diff.)
(to be used with service control box)

It is not necessary for persons to keep a safety distance from the running radar because in any consideration the limits of electrical fields in the EU recommendation 1999/519/EG are not exceeded.

Mounting possibility:

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

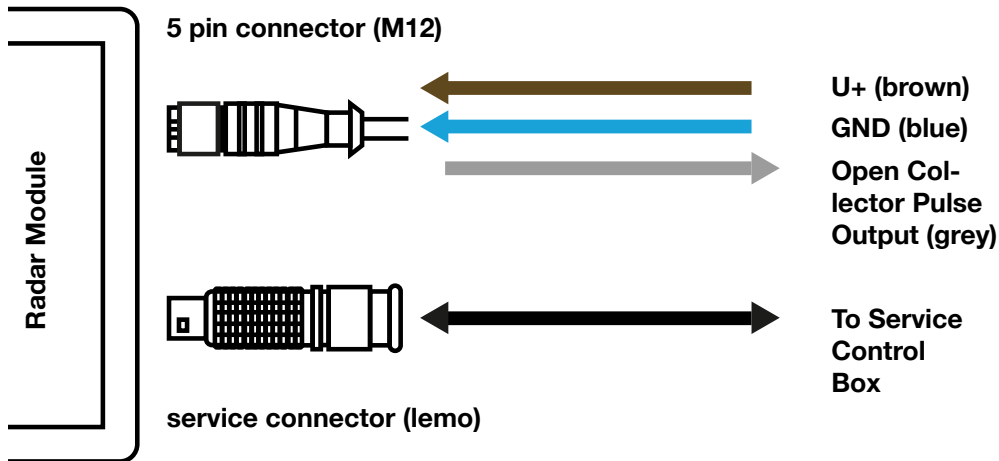
Environmental Specifications

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

MODULE INTERFACE

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

Adjustments of the pulse frequency are done via the lemo service connector.



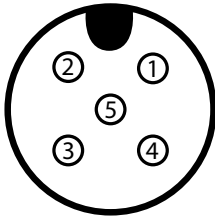
The radar system has the following interfaces:

- **Power supply +9 to 30V (brown wire) and GND (ground, blue wire)**
- **Open Collector Pulse Output (grey wire)**
- **Service Connector (black wire)**

MODULE INTERFACE

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

CONFIGURATION OF THE PULSE OUTPUT FREQUENCY

The pulse frequency rate of 16 pulses(default) corresponding to one meter of travel distance can be set to another value. The radar has an extra lemo configuration connector to be connected to the service control box. A configuration telegram should be sent from a PC to the service control box for adjusting the pulse frequency.

The adjustment telegram consists of:

Byte 1: 0x7e (integer 126) constant

Byte 2: 0x7e (integer 126) constant

Byte 3: 0x7e (integer 126) constant

Byte 4: factor (lower Byte)

Byte 5: factor (higher Byte)

The RS232 communication interface has the following specification:

· **Interface specification: 19200, 8, N, 1**

The radar will answer with the same telegram. The factor is stored in the radar module. When switching on the radar module, the factor which is stored will be used. The default frequency pulse rate of 16 pulses per travelled meter corresponds with a factor of 1, a value in the 2 bytes of 1000.



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