



# TGSS Sensors

Catalog MSG33-5005/US



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## Application

The True Ground Speed Sensor (TGSS) belongs to the Parker family of accessories provided to complement electronic control systems. The sensor determines true ground speed using Doppler beam technology and reports the information using a frequency signal. The TGSS is intended for vehicle and other applications with a steady voltage of less than or equal to 16 Vdc. The general market versions of the sensor have a short cable with either an attached AMP Superseal or a Deutsch DT series connector. To make the sensor suitable for mobile equipment, we have focused upon properties such as reliability and ease of installation.

## Properties

### Features

The TGSS has an ABS plastic construction for sturdiness and corrosion resistance. The sensor uses planar antenna, Doppler effect technology for trouble free operation. A microwave signal transmitted out of the sensor is reflected off the target and received by the sensor. The ground speed is calculated by measuring the change in frequency. The sensor can be specified with one of 2 microwave carrier frequencies, either the standard frequency, or one suitable for the United Kingdom.

The TGSS mounts to a bracket on the underside of the vehicle where the sensor may be pointed in either the forward or reverse direction. Built to meet stringent SAE J1455/EP455 environmental standards, the sensor is very robust and able to withstand rugged applications.

### Reliability

The TGSS is well designed for the mobile equipment industry. The connectors are weatherproof, AMP Superseal or Deutsch DT type, designed for automotive use. The connector, combined with potted electronics, gives the sensor protection for exposed outdoor applications. The 3 point, shock absorbing mounting pattern in the base simplifies alignment. These features provide for easy installation and removal, even in field conditions.

TGSS users appreciate the sensor's robust design as well as its adherence to industry standards for the environment (ANSI/ASAE EP455). The TGSS passes all the requirements of the European EMC directive and has CE approval and e-mark approval. All of these features make the True Ground Speed Sensor easy to integrate into any agricultural equipment or off-highway vehicle.

## General

|                           |                         |
|---------------------------|-------------------------|
| Weight                    | 460 g                   |
| Temperature range         |                         |
| Operating, ambient        | -40 to +85 °C           |
| Storage, ambient          | -55 to +125 °C          |
| Protection                | IPX6 equivalent         |
| Speed range               | 0.3-44 mph [0.5-70 kph] |
| Uncalibrated accuracy     | ± 5%                    |
| Calibrated accuracy       |                         |
| 2.0 to 44 MPH             | ± 1%                    |
| 0.20 to 2.0 MPH           | ± 3%                    |
| Velocity change detection |                         |
| dv/dt ≤ 4 mph             | 200 ms                  |

## Mechanical characteristics

|               |              |
|---------------|--------------|
| Case          | ABS plastic  |
| Mount         | 3 x M6 bolts |
| Cable, length | 200 mm       |

## Connector

|    |                   |
|----|-------------------|
| -A | AMP Superseal 1.5 |
| -D | Deutsch (DT04)    |

## Electrical characteristics

|                                 |                       |
|---------------------------------|-----------------------|
| Voltage supply                  | 9 - 16 Vdc            |
| Current draw                    |                       |
| Doppler signal only             | 30 mA @ 12 Vdc        |
| Microwave frequency             |                       |
| Standard                        | 24.125 GHz +/- 50 MHz |
| United Kingdom (-UK)            | 24.300 GHz +/- 50 MHz |
| Scaling factor                  |                       |
| -A                              | 1.0 scaling           |
| -D                              | 0.75 scaling          |
| Digital output (sensor present) |                       |
| -A                              | 0                     |
| -D                              | 1                     |
| Max load                        | 100 mA                |

## Compliances

|                 |            |
|-----------------|------------|
| Industry Canada | RSS-210    |
| FCC             | Part 15    |
| FCC ID          | MGR740030A |

## Ordering part numbers

|               |            |
|---------------|------------|
| TGSS, -A      | 0740059ECD |
| TGSS, -A, -UK | 0740078ECD |
| TGSS, -D      | 0740051ECD |
| TGSS, -D, -UK | 0740072ECD |

**Environmental protection**

**EMI**

- EP455 (Jul 1991) Section 5.10.3, Reverse polarity
- EP455 (Jul 1991) Section 5.10.4, Short circuit
- EP455 (Jul 1991) Section 5.11, Electrical transients
- EP455 (Jul 1991) Section 5.16.3, EMC emissions
- EP455 (Jul 1991) Section 5.16.1, EMC immunity to radiated EM field

**ESD**

- EP455 (Jul 1991) Section 5.12 Level-2, ESD

**Mechanical environment**

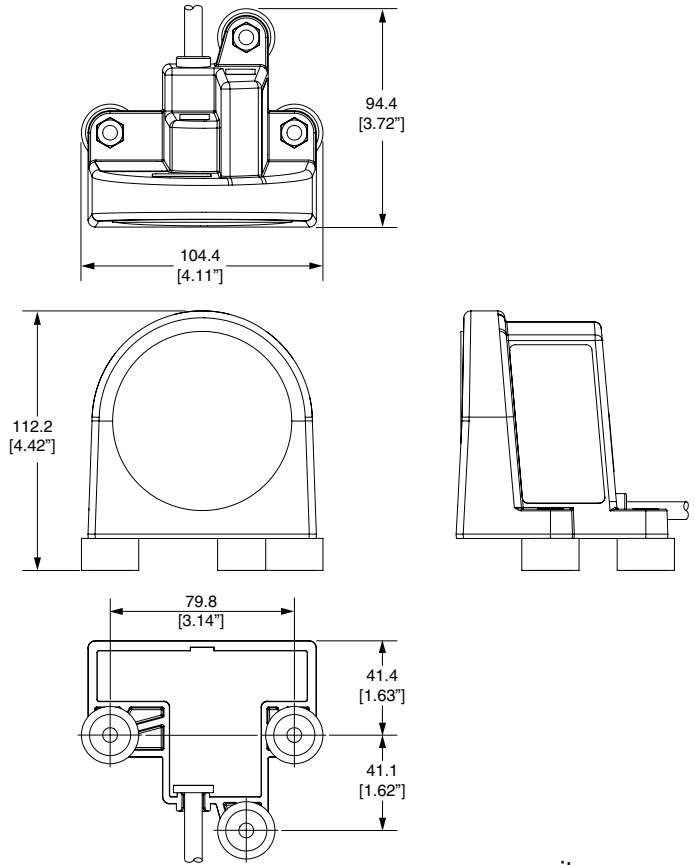
- EP455 (Jul 1991) Section 5.15.1, Random vibration
- EP455 (Jul 1991) Section 5.14.1, Mechanical shock
- EP455 (Jul 1991) Section 5.14.2.2 Level-1, Mechanical handling shock

**Climate environment**

- EP455 (Jul 1991) Section 5.6 Level-1 and Level-2, Wash
- EP455 (Jul 1991) Section 5.13.1, Humidity exposure
- EP455 (Jul 1991) Section 5.13.2, Humidity soak
- EP455 (Jul 1991) Section 5.1.1 Level-2, Operating temperature
- EP455 (Jul 1991) Section 5.1.2 Level-2, Storage temperature
- EP455 (Jul 1991) Section 5.1.3, Thermal shock

**Chemical environment**

- EP455 (Jul 1991) Section 5.9 Level-2, Salt exposure



units=mm  
[inch]



**WARNING - USER RESPONSIBILITY**

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**WARNING - California Proposition 65**

This product can expose you to chemicals including 4,4'-(PROPANE-2,2-DIYL)DIPHENOL, BPA, P,P'-ISOPROPYLIDENEBISPHENOL, which is known to the State of California to cause birth defects or other reproductive harm.

For more information go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov)