TGSS Sensors
Catalog HY33-5005/US
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.

Technical data

<table>
<thead>
<tr>
<th>General</th>
<th>TGSS Sensors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weight</td>
<td>460 g</td>
</tr>
<tr>
<td>Temperature range</td>
<td>-40 to +85 °C</td>
</tr>
<tr>
<td>Storage, ambient</td>
<td>-55 to +125 °C</td>
</tr>
<tr>
<td>Protection</td>
<td>IPX6 equivalent</td>
</tr>
<tr>
<td>Speed range</td>
<td>0.3-44 mph [0.5-70 kph]</td>
</tr>
<tr>
<td>Uncalibrated accuracy</td>
<td>± 5%</td>
</tr>
<tr>
<td>Calibrated accuracy 2.0 to 44 MPH</td>
<td>± 1%</td>
</tr>
<tr>
<td>Calibrated accuracy 0.20 to 2.0 MPH</td>
<td>± 3%</td>
</tr>
<tr>
<td>Velocity change detection</td>
<td>( dv/dt \leq 4 \text{ mph} ) 200 ms</td>
</tr>
</tbody>
</table>

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             | 30 mA@12 Vdc        |
| Doppler signal only      | 24.125 GHz +/- 50 MHz |
| Standard Microwave frequency | 24.300 GHz +/- 50 MHz |
| United Kingdom (-UK)     | -A: 44.2 Hz/mph (1 pulse/cm) D: 58.9 Hz/mph |
| Scaling factor           | Max load            | 100 mA          |
| Digital output (sensor present) | -A: 0 D: 1 |

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

WARNING - USER RESPONSIBILITY

FAILURE OR IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.

- This document and other information from Parker-Hannifin Corporation, its subsidiaries and authorized distributors provide product or system options for further investigation by users having technical expertise.
- The user, through its own analysis and testing, is solely responsible for making the final selection of the system and components and assuring that all performance, endurance, maintenance, safety and warning requirements of the application are met. The user must analyze all aspects of the application, follow applicable industry standards, and follow the information concerning the product in the current product catalog and in any other materials provided from Parker or its subsidiaries or authorized distributors.
- To the extent that Parker or its subsidiaries or authorized distributors provide component or system options based upon data or specifications provided by the user, the user is responsible for determining that such data and specifications are suitable and sufficient for all applications and reasonably foreseeable uses of the components or systems.

OFFER OF SALE

The items described in this document are hereby offered for sale by Parker-Hannifin Corporation, its subsidiaries or its authorized distributors. This offer and its acceptance are governed by the provisions stated in the detailed “Offer of Sale” available from your Parker representative or at www.parker.com.
Sales Offices Worldwide

North America
Hydraulics Group Headquarters
6035 Parkland Boulevard
Cleveland, OH 44124-4141 USA
Tel: 216-896-3000
Fax: 216-896-4031

Parker Hannifin Canada
Parker Canada Division – Milton
160 Chisholm Drive Milton
Ontario Canada L9T 3G9
Tel: 905-693-3000
Fax: 905-876-1958

Mexico
Parker Hannifin de México
Av. Eje uno norte num 100
Parque Industrial Toluca 2000
Toluca, Mex C.P. 50100
Tel: 52 722 2754200
Fax: 52 722 2799308

Europe
Europe Hydraulics Group
Parker Hannifin Corporation
Parker House
55 Maylands Avenue
Hemel Hempstead, Herts
HP2 4SJ England
Tel: 44 1442 458000
Fax: 44 1442 458085

Latin America
Brazil
Hydraulics Division
Parker Hannifin Ind. e Com. Ltda
Av. FredericoRitter, 1100
Cachoeirinha RS, 94930-000 Brazil
Tel: 55 51 3470 9144
Fax: 55 51 3470 3100

Chile
Parker Hannifin Chile Ltd.a
Av. America Vespucio 2760-E, Conchali - Santiago, Chile
Tel: 56 2 623 1216
Fax: 56 2 623 1421

Pan American Division
7400 NW 19th Street, Suite A
Miami, FL 33126 USA
Tel: 305-470-8800
Fax: 305-470-8808

Mobile Sales
Mobile Sales Organization
and Global Sales
850 Arthur Avenue
Elk Grove Village, IL 60007 USA
Tel: 847-258-6200
Fax: 847-258-6299

Industrial Sales
Great Lakes Region
3700 Embassy Parkway
Suite 260
Fairlawn, OH 44333 USA
Tel: 330-670-2680
Fax: 330-670-2681

Southern Region
1225 Old Alpharetta Road
Suite 290
Alpharetta, GA 30005 USA
Tel: 770-619-9767
Fax: 770-619-9806

Chicago Region
1163 E. Ogden Avenue
Suite 705, #358
Naperville, IL 60563 USA
Tel: 630-964-0796
Fax: 866-473-9274

Pacific Region
8460 Kass Drive
Buena Park, CA 90621
Tel: 714-228-2510
Fax: 714-228-2511

Eastern Region
100 Corporate Drive
Lebanon, NJ 08833 USA
Tel: 908-236-4121
Fax: 908-236-4146

Gulf Region
20002 Standing Cypress Drive
Spring, TX 77379 USA
Tel: 281-519-8490
Fax: 866-390-4986

Asia Pacific
Asia Pacific Headquarters
Parker Hannifin Hong Kong Ltd
8/F, Kin Yip Plaza
9 Cheung Yee Street
HK-Cheung Sha Wan, Hong Kong
Tel: 852 2428 8008
Fax: 852 2425 6896

Australia Headquarters
Parker Hannifin Pty Ltd.
9 Carrington Road
Castlerock Hill, NSW 2154, Australia
Tel: 612 9634 7777
Fax: 612 9842 5111

China Headquarters
Parker Hannifin Motion & Control (Shanghai) Co., Ltd
280 Yungqiao Road,
Jin Qiao Export Processing Zone
CN-Shanghai 201206, China
Tel: 86 21 5031 2525
Fax: 86 21 5834 3714

Korea Headquarters
Parker Hannifin Korea Ltd
6F Daehwa Plaza
169 Samsung-dong, Gangnam-gu
KR-Seoul, 135-090, Korea
Tel: 82 2 559 0400
Fax: 82 2 556 8187

South Africa
Parker Hannifin Africa Pty Ltd
Parker Place
10 Berne Avenue Aeroport
P.O. Box 1153
ZA-Kempton Park 1620,
Republic of South Africa
Tel: 27 11 961 0700
Fax: 27 11 392 7213

Middle East
Egypt
Parker Hannifin Corporation
8B Zahraa Maadi
Region 17F
Cairo, Egypt
Tel: 20 2 519 4018
Fax: 20 2 519 0605