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TGSS Sensors

Catalog HY33-5005/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	44.2 Hz/mph (1 pulse/cm)
-D	58.9 Hz/mph
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

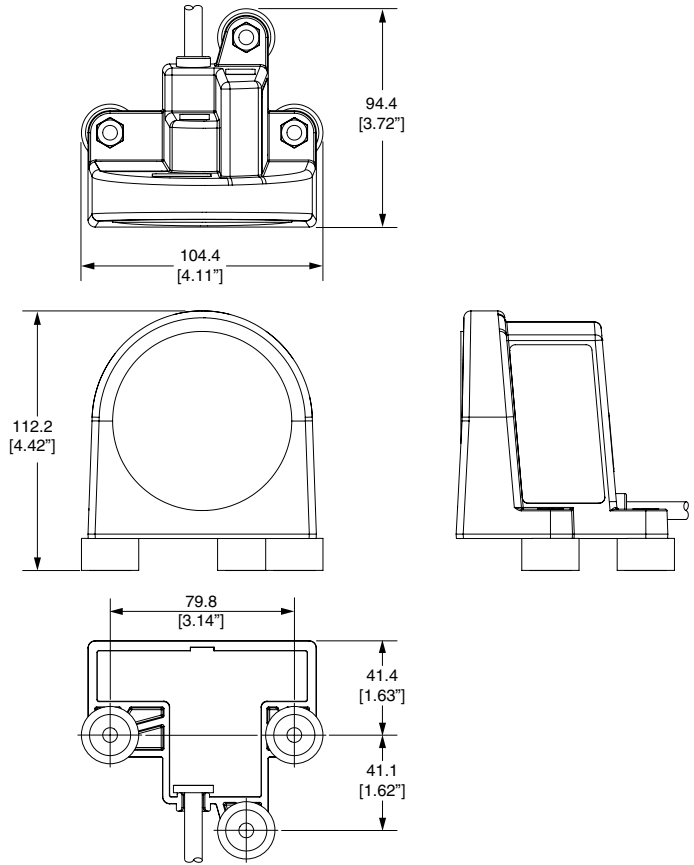
- EP455 (Jul 1991) Section 5.15.1, Random vibration
- EP455 (Jul 1991) Section 5.14.1, Mechanical shock
- EP455 (Jul 1991) Section 5.14.2.2 Level-1, Mechanical handling shock

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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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. Frederico Ritter, 1100
Cachoeirinha RS, 94930-000 Brazil
Tel: 55 51 3470 9144
Fax: 55 51 3470 3100

Chile

Parker Hannifin Chile Ltd.a
Av. Americo 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: 317-519-8490
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
Castle Hill, NSW 2154, Australia
Tel: 612 9634 7777
Fax: 612 9842 5111

China Headquarters

**Parker Hannifin Motion & Control
(Shanghai) Co., Ltd**
280 Yunqiao 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 Airport
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

Parker Hannifin Corporation
Electronic Controls Division
1305 Clarence Avenue
Winnipeg, MB, Canada R3T 1T4
phone 204 452 6776

