



# Universal Tilt Sensor - Gyro (UTS-G) Tilt Sensors

Catalog MSG33-2382/US



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**Technical data****Universal Tilt Sensor - Gyro****Application**

The UTS-G belongs to the Parker family of accessories provided to complement electronic control systems. The UTS-G is a multi-axis, MEMS technology tilt sensor for mobile hydraulic applications. The sensor communicates over a CAN bus using SAE J1939 protocol and has an integral Deutsch connector. The UTS-G is an enhanced version of the standard UTS with gyroscopic compensation that meets increasing mobile equipment requirements for dynamic performance monitoring. Other properties we focus on are stability, reliability, electromagnetic immunity, and ease of installation.

**Properties****Reliability**

The UTS-G has a glass-filled, hybrid plastic construction for sturdiness and corrosion resistance. The sensor is very robust and able to withstand rugged applications while being protected and sealed against harsh environments using spin-weld technology. These features give the sensor IP68/IP69K protection for exposed outdoor applications.

**Electromagnetic immunity**

The design of the UTS-G has a high level of EMI protection.

**Installation**

This design allows for the use of standard 1/4" or M6 bolts for mounting. The 3 mounting holes are in a tripod pattern to facilitate a mistake proof installation reducing overall manufacturing time. The 4 pin connector is a sealed Deutsch DT type designed for automotive use. These features provide for easy installation and removal, even in field conditions.

**Environmental protection****EMI**

ISO 11452-2	100 V/m
ISO7637-2 and -3	transients
EN 61000-6-2 and 6-4	conducted disturbance
ISO 13766:2010	radiated emission
ISO 14982:2009	radiated emission

**ESD**

ISO 10605:2008	±15 kV
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**Mechanical**

Shock	1m drop
Vibration	40 Gs

**General**

Weight	0.14 kg
Temperature (operating)	-40°C to 85°C
Temperature (storage)	-40°C to 105°C
Number of axes	3 (X/Y/Z) or 2 (SSI2)
Angular range	±90° (X/Y/Z)
Pitch range	±180° (SSI2)
Roll range	±90° (SSI2)

**Communication**

CAN protocol	SAE J1939
CAN messages	see part drawing
CAN bus speed	250 k, up to 500 k
Data broadcast rate	50 Hz, up to 200 Hz
CAN source address	0xE4

**Mechanical characteristics**

Mounting bolt	1/4"-20 UNC or M6x1.0
Mounting torque	135 in-lb max
Mounting surface	flatness .010"
Connector	Deutsch DT

**Electrical specifications**

Operating voltage	6 - 36 Vdc
Startup voltage	5.25 Vdc (20 ms max)
Reverse polarity	-48 Vdc
Short circuit protection	-VBAT and 48 Vdc
Current draw	19.0 mA (12 V) 18.0 mA (24 V)
Tilt resolution	0.01°/BIT
Pitch/Roll resolution	0.00003°/BIT
Static repeatability	0.05°
Static accuracy (pitch/roll)	±0.3° typical
Dynamic accuracy (pitch/roll)	±0.5° typical
Starting time	50 ms max.
Settling time	100 ms

**Ordering part number**

UTS-G	163161ECD
Steel shield	165361ECD

**Climate**

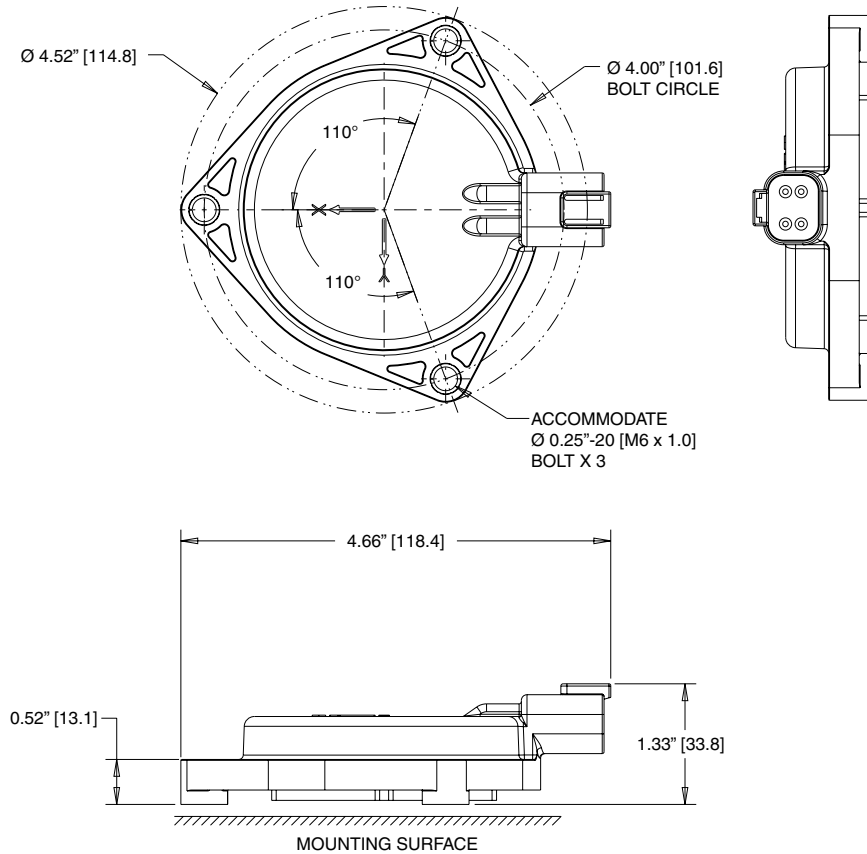
Sealing	IP68 / IP69K
(with rear connector protection, such as backshell)	

**Chemical**

Liquids (resistance)	standard automotive
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**Markings and Approvals**

CE	2014/30/EU EMC 2011/65/EU RoHS2
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**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.**

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**WARNING - California Proposition 65**

This product can expose you to chemicals including ANTIMONY TRIOXIDE, CARBON BLACK (AIRBORNE, UNBOUND PARTICLES OF RESPIRABLE SIZE) which is known to the State of California to cause cancer and 4,4'-(PROPANE-2,2-DIYL)DIPHENOL, BPA, P,P'-ISOPROPYLDIENE BISPHENOL, 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)

# Parker Motion Systems International Sales Offices

## North America

### Motion Systems Group

#### Headquarters

6035 Parkland Boulevard  
Cleveland, OH 44124-4141 USA  
Tel: 216-896-3000  
Fax: 216-896-4031

### Parker Canada Division

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

### Parker Hannifin de México

Industrial Hydraulic Sales  
Eje Uno Norte No.100  
Parque Industrial Toluca 2000  
Toluca, Edo, de Mexico CP 50100  
Tel: 52 722 275 4200  
Fax: 52 722 279 9308

### Parker Hannifin de México

Mobile Hydraulic Sales  
Via de FFCC a Matamoros 730  
Apodaca, NL, de Mexico CP 66600  
Tel: 52 81 8156 6000  
Fax: 52 81 8156 6068

## Europe

### Motion Systems Group

#### Headquarters

La Tuilière 6  
1163 Etoy - Switzerland  
Tel: 41 21 821 8500  
Fax: 41 21 821 8580

## South Africa

### Parker Hannifin Africa Pty Ltd

P.O. Box 1153  
ZA-Kempton Park 1620,  
Republic of South Africa  
Tel: 27 11 961 0700  
Fax: 27 11 392 7213

## 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

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1042 Maple Avenue  
Unit 331  
Lisle, IL 60532 USA  
Tel: 630-964-0796

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6035 Parkland Boulevard  
Cleveland, OH 44124-4141 USA  
Tel: 216-896-2740  
Fax: 866-498-7507

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20002 Standing Cypress Drive  
Spring, TX 77379 USA  
Tel: 817-473-4431  
Fax: 888-227-9454

### Southwest Region

700 S. 4th Avenue  
Mansfield, TX 76063 USA  
Tel: 817-473-9341  
Fax: 817-473-2680

### Mid Atlantic and Southeast Regions

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

### Midwest Region

8145 Lewis Road  
Minneapolis, MN 55427 USA  
Tel: 763-513-3535  
Fax: 763-544-3418

### Northeast Region

P.O. Box 396  
Pine Brook, NJ 07058 USA  
Tel: 973-227-2565  
Fax: 973-227-2467

### Northwest Region

6458 North Basin Avenue  
Portland, OR 97217 USA  
Tel: 503-283-1020  
Fax: 866-611-7308

### Pacific Region

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

## Asia Pacific

### Parker Hannifin Shanghai Ltd

280 Yunqiao Road,  
Jin Qiao Export Processing Zone  
Shanghai 201206, China  
Tel: 86 21 2899 5000  
Fax: 86 21 6445 9917

### Parker Hannifin Hong Kong Ltd

8/F, Kin Yip Plaza  
9 Cheung Yee Street  
Cheung Sha Wan, Hong Kong  
Tel: 852 2428 8008  
Fax: 852 2425 6896

### Parker Hannifin Korea Ltd

9F KAMCO Yangjae Tower  
949-3 Dogok1-dong, Gangnam-gu  
Seoul, 135-860, Korea  
Tel: 82 2 559 0400  
Fax: 82 2 556 8187

### Parker Hannifin India Pvt Ltd

Plot No. EL-26, MIDC  
TTC Industrial Area  
Mahape, Navi Mumbai, 400 709 India  
Tel: 91 22 6513 7081  
Fax: 91 22 2768 6841

### Parker Hannifin Australia

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

## Latin America

### Parker Hannifin Ind. e Com. Ltda Hydraulics Division

Av. FredericoRitter, 1100  
94930-000 Cachoeirinha RS, Brazil  
Tel: 55 51 3470 6090  
Fax: 55 51 3470 9281

### Parker Hannifin Argentina S.A.I.C.

Stephenson 2711  
1667-Tortuguitas-Malvinas Argentinas  
Pcia. de Buenos Aires, Argentina  
Tel: 54 3327 44 4129  
Fax: 54 3327 44 4199

### Pan American Division

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

