



# Dual-Axis MEMS Gyro Evaluation Board

## IDG-400EVB

### GENERAL DESCRIPTION

The IDG-400EVB provides a simple means of evaluating the IDG-400 X- and Y-axis angular rate gyroscope. The gyro contains all required conditioning electronics in a single chip measuring 4 x 5 x 1.2mm. The IDG-400 incorporates X- and Y-axis low-pass filters and an EEPROM for on-chip factory calibration of the sensor. Factory trimmed gyro scale factors eliminate the need for external active components and end-user calibration. The product is lead-free and Green Compliant.

### APPLICATIONS

- General Motion Sensing
- Vehicle Motion Analysis
- Platform Stabilization
- Inertial Measurement Units

### PIN DEFINITIONS

Pin	Signal	Purpose
1	OUTX	Output of the X-Axis Gyro
2	HPS	Auto Zero Input
3	OUTY	Output of the Y-Axis Gyro
4	NC	Do not connect to this pin
5	VREF	Voltage Reference Output
6	GND	Ground
7	GND	Ground
8	+VOUT	VDD for Gyro
9	GND	Ground
10	+VIN	Input Supply Pin for LDO

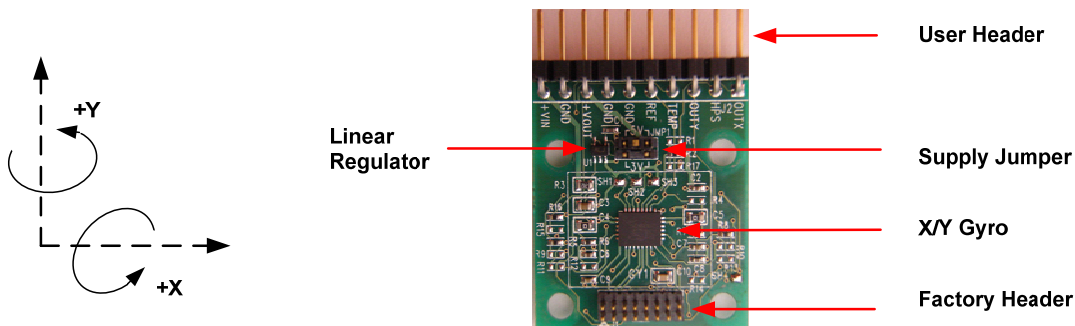
### FEATURES

- Fully-tested board for easy evaluation of dual-axis (X/Y) gyro
- Fully integrated X- and Y-axis gyros on a single chip
- 500°/s full scale range
- 2.0mV/°/s sensitivity
- Integrated amplifiers and low-pass filters
- High vibration rejection over a wide frequency range
- High cross-axis isolation by proprietary MEMS design
- 3V single supply operation
- Hermetically sealed for temp and humidity resistance
- 10,000 g shock tolerant
- RoHS and Green Compliant

### ELECTRICAL SPECIFICATIONS

Parameter	Specifications	Unit
Full-Scale Range	±500	°/sec
Sensitivity	2.0	mV/°/sec
Cross Axis Sensitivity	± 1	%
Non-linearity	< 1	% of FSR
Gyro Supply Voltage	3.0 ±0.3	V
Gyro Supply Current	7	mA
Operating Temperature	-20 to +85	°C
On time	50	ms
Shock Tolerance	10,000	g

### COMPONENT PLACEMENT AND BOARD ORIENTATION



# IDG-400EVB

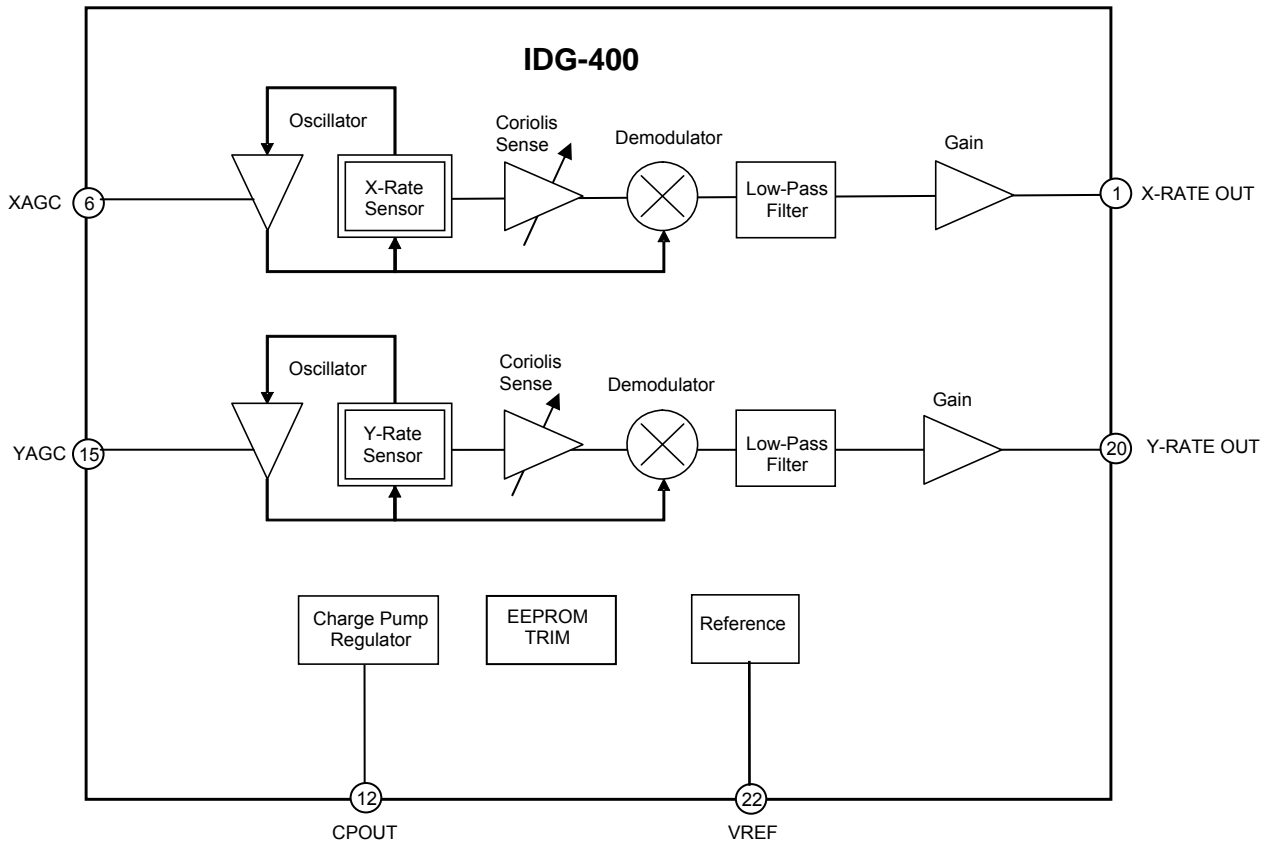
**Purpose**

This document provides the specification for the IDG-400 Dual-Axis Gyroscope Evaluation Board configured per the table below.

**Evaluation Board Configuration**

Sensitivity	Internal LPF	External LPF
2 mV/deg/sec	140Hz	2kHz

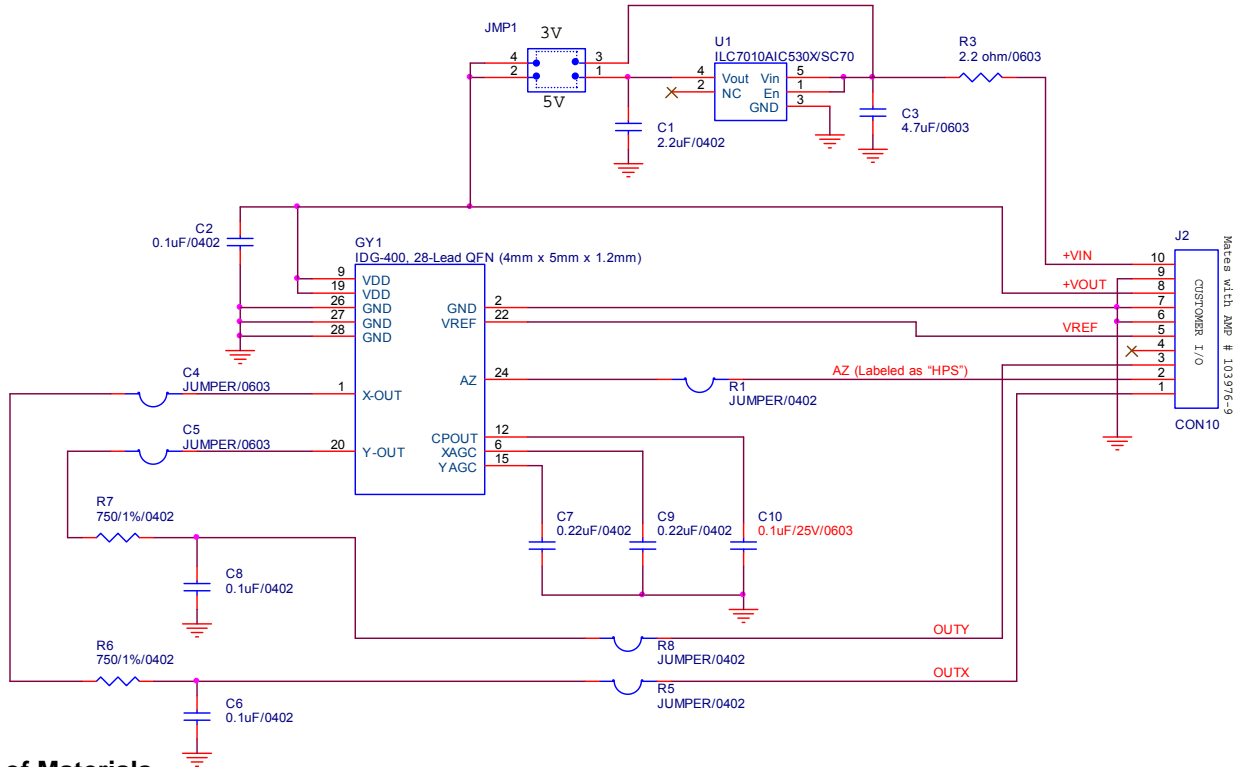
**IC Functional Block Diagram**



## IDG-400 Evaluation Board Configuration

### Schematic

The schematic below specifies the components on the IDG-400 Evaluation Board.



### Bill of Materials

Reference	Part
C1	CAP Ceramic 2.2 $\mu$ F 6.3V X5R 0402
C2, C6, C8	0.1 $\mu$ F/10V X5R 0402
C3	4.7 $\mu$ F/6.3V X5R 0603
C4, C5	0 $\Omega$ /0603 jumper
C7, C9	0.22 $\mu$ F/6.3V X5R 0402
C10	0.1 $\mu$ F/25V/X5R 0603
GY1	IDG-400 28-Lead QFN (4mm x 5mm x 1.2mm)
JMP1	CON4A/0.050" X 0.1"
JMP1	Shunt jumper
J1	CON16A/0.050 X2 (Reserved for factory use)
J2	0.1" RA 10 PIN STRIP lead Free
R3	2.2 $\Omega$ /MF 5% 0603
R6, R7	750 $\Omega$ /MF 1% 0402
U1	Voltage Regulator 3.0V SC70 (Lead Free)
R1, R5, R8	0 $\Omega$ /0402 jumper

**Special Instructions**

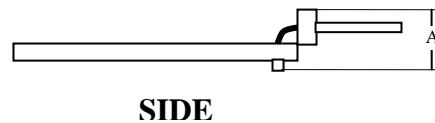
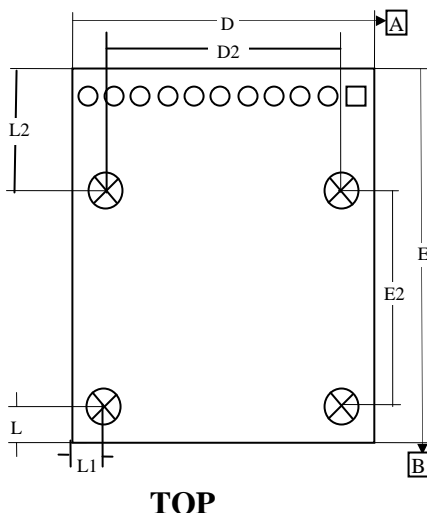
**Electrostatic Discharge Sensitivity**

The IDG-400 gyro can be permanently damaged by an electrostatic discharge. ESD precautions for handling and storage are recommended.

**Jumper Connector**

The IDG-400 evaluation board is equipped with a jumper connector to control the voltage supplied to the gyro. When the jumper is located in the “up” or standard position as shown in the picture above, the 5 Volts being supplied to the gyro is regulated to 3 Volts using an on-board regulator. When the jumper is located in the “down” position, the on-board regulator is bypassed and the gyro is being directly supplied with the voltage on Pins 9 and 19 of the IC.

**Dimensional Drawing**



Dimensions (mm)		
A	5.0	±1.0
D	25.7	±0.1
E	31.8	±0.1
L	3.1	±0.1
L1	3.1	±0.1
L2	10.2	±0.1
D2	19.5	±0.1
E2	18.5	±0.1

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