Jewell Instruments

MAKING SENSE OUT OF MOTION

ECG eCOMPASS SERIES

Gyro-Stabilized Electronic Compass

If your compass application involves vibration, acceleration, uneven terrain, or rough seas, the ECG Series, a gyro-stabilized electronic compass, is an uncompromising solution that will outperform rival units that cost more. The ECG provides remarkably accurate heading, pitch, and roll in dynamic conditions. It all starts with a precision 3-axis solid-state magnetometer. Two angular rate gyros independently stabilize pitch and roll. They augment a dual-axis, electrolytic tilt sensor that provides precise tilt measurements in static environments. Two sets of independent filters, one set for pitch and one for roll, combine gyro and electrolytic sensor measurements to provide the best available tilt measurements.

FEATURES:

- High Accuracy
- Wide Operating Range
- Fast Response - 14 Readings per Second
- Single Supply Operation
- Low Power
- Wide Selection of Output Data
  - Heading, Pitch, & Roll
  - Temperature, input voltage, and dip angle
  - Output ASCII or binary
  - Horizontal X and Y magnetic field strength
  - Raw and conditioned gyro data
- Two independent serial channels
- In-System Configuration and Test






APPLICATIONS:

- Unmanned vehicles
- Robotics
- Weather buoys
- Antenna positioning
- Marine navigation

(800) 227-5955 • www.jewellinstruments.com • sensors@jewellinstruments.com

PERFORMANCE SPECIFICATIONS

HEADING PERFORMANCE

ACCURACY (rms)	±0.5° typical: Tilt <35°, Dip <60°
	± 3.0° rms, Dynamic, rate < 250°/sec
REPEATABILITY	±0.3°, static, no filter
RESPONSE TIME	36 msec minimum, no filter
DIP ANGLE RANGE	±80°
TILT RANGE	±40°
UPDATE RATE	28 per second

ELECTRICAL

SUPPLY CURRENT	30mA operating, typical
	10mA sample, typical
	2mA standby, typical
SUPPLY VOLTAGE	6-45 VDC unregulated (4.9 VDC min)
	5.0 VDC regulated (4.9 VDC min)

PITCH & ROLL PERFORMANCE

ACCURACY	±0.3°, factory calibrated
REPEATABILITY	±0.2°, no filter
RANGE (°)	±42°
SETTLING TIME	0.5 seconds, Guros enabled

ENVIRONMENTAL

OPERATING TEMP. RANGE	-40° to +105°C
STORAGE TEMP. RANGE	-50° to +150°C
HUMIDITY	0 to 90%

INTERFACE

SIGNAL TYPE	RS232 or RS485
BAUD RATE	2400, 4800, 9600, 19200, 38400, or 57600 bps
CHARACTER FORMAT	8 data, no parity, 1 stop
INPUT BUFFER SIZE	110 characters
OUTPUT BUFFER SIZE	110 characters
OUTPUT FORMAT	NMEA 0183
OUTPUT DATA RATE	1 to 1650 sentences/min
OPERATING MODES	Continuous or sample
ANGLE UNITS	Degrees, mils, radians, 16-bit integer

PIN OUTS

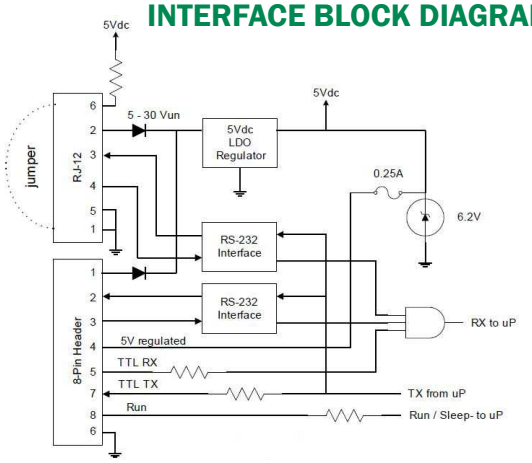
RJ-12 JACK

1	GROUND
2	POWER
3	TX
4	RX
5	GROUND
6	100K

8-PIN HEADER

1	UNREGULATED PWR
2	RS232 TX OUT
3	RS232 RX IN
4	REGULATED PWR
5	TTL RX IN
6	GROUND
7	TTL TX OUT
8	TTL RUN/SLEEP IN

INTERFACE BLOCK DIAGRAM



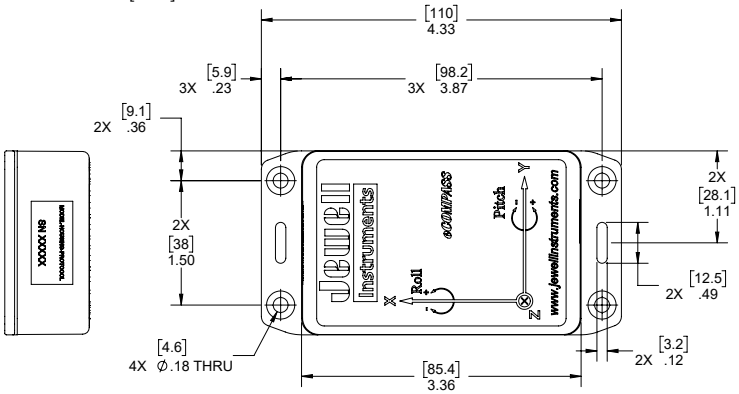
PRODUCT SPECIFICATIONS

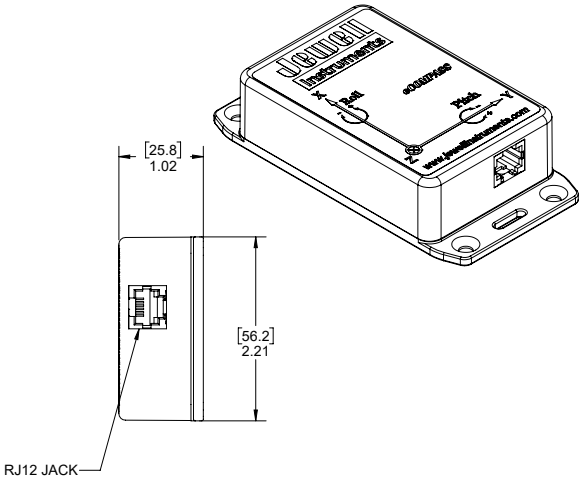
MECHANICAL

	PLASTIC ENCLOSURE	ALUMINUM ENCLOSURE
ENCLOSURE DETAILS	(ABS) Flame Retardant UL94 V0	Diecast Aluminum Alloy (Type 360.1)
PCB SIZE	1.6”W x 3.0”L x 0.6”H (H required for tilt sensor)	
PCB MOUNTING	4 #4 screws, 1.4” x 2.2” spacing	
WEIGHT	3.2 oz. (90.7 g)	7.2 oz. (204.1 g)
CONNECTOR	6 pin RJ12 modular jack	8 pin, single-row 0.1” friction header

DIMENSIONS OF PLASTIC ENCLOSURE

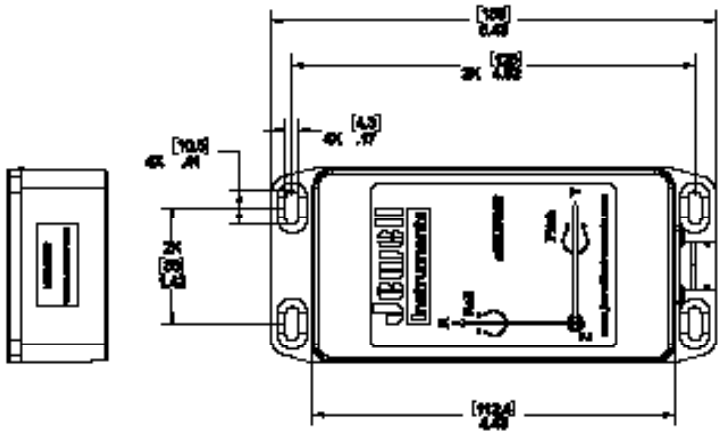
Dimensions: in [mm]

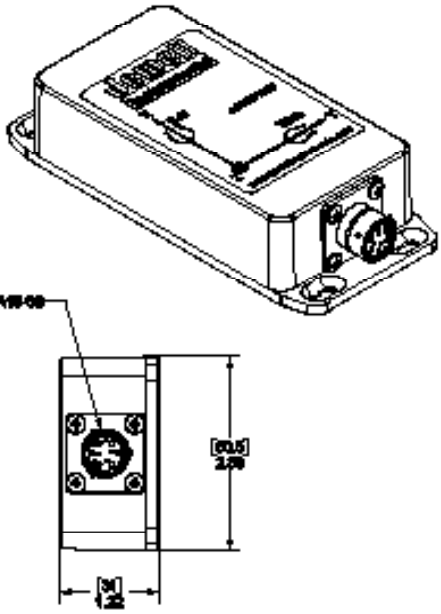




DIMENSIONS OF ALUMINUM ENCLOSURE

Dimensions: in [mm]





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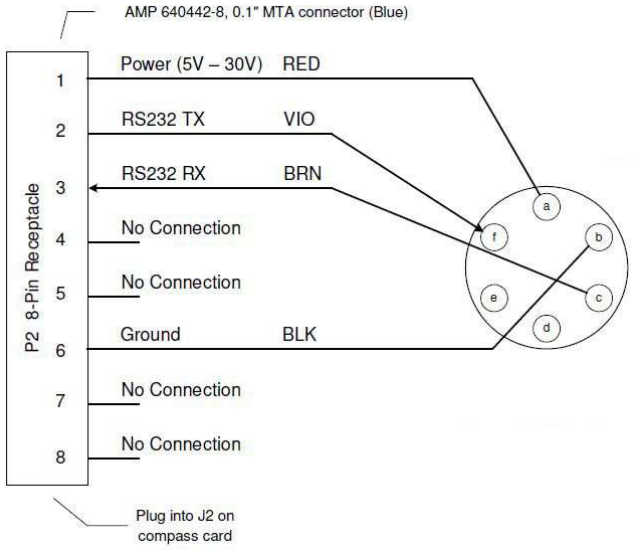
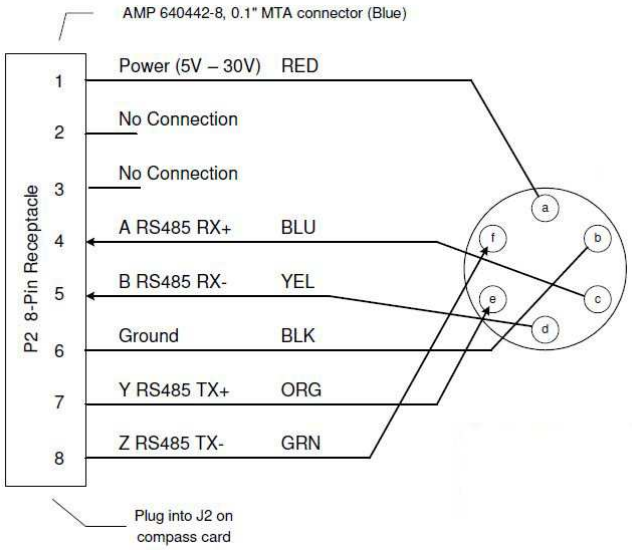
PRODUCT SPECIFICATIONS

RS-232 WIRING



RS-485 WIRING



ORDERING INFORMATION

RoHS VERSION	ENCLOSURE	MODEL #	PART #
RS232	PLASTIC	ECG-P/J-RS232-ROHS	02550403-ECG-001
	ALUMINUM	ECG-A/C-RS232-ROHS	02550403-ECG-002
RS485	ALUMINUM	ECG-A/C-RS485-ROHS	02550403-ECG-003

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