Jewell Instruments

MAKING SENSE OUT OF MOTION

ECL eCOMPASS SERIES

Low Power Electronic Compass

The ECL eCompass series is a strap-down electronic compass designed specifically for commercial, industrial, military users, and ROV & AUV manufacturers who are concerned with power usage and accurate heading in all types of challenging conditions.

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
    - Magnetometer X, Y, & Z
    - Dip Angle
    - Total, horizontal, & vertical megnetic field strength
- Full Duplex RS-232 or TTL Interface
- In-System Configuration and Test
- Available with Aluminum or Plastic Enclosure
- Built in compensation for both hard and soft iron influences
- Quick-connect External Serial Interface
- Monitor Outputs and Change User-definable Settings

APPLICATIONS:

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

PERFORMANCE SPECIFICATIONS

HEADING PERFORMANCE

ACCURACY (rms)	±0.5° typical: Tilt <35°, Dip <60°
REPEATABILITY	±0.2°, no filter
RESPONSE TIME	75 msec minimum, no filter
DIP ANGLE RANGE	±80°
TILT RANGE	±42° or ±60°
UPDATE RATE	14 per second

PITCH & ROLL PERFORMANCE

ACCURACY	±0.2°, factory calibrated
REPEATABILITY	±0.15°, no filter
RANGE (°)	±42° or ±60°
SETTLING TIME	0.5 seconds, no damping

ELECTRICAL

SUPPLY CURRENT	15mA operating, typical
	5mA sample, typical
	50µA standby, typical
SUPPLY VOLTAGE	6-30 VDC unregulated
	5.0 VDC regulated (4.9 VDC min)

ENVIRONMENTAL

OPERATING TEMP. RANGE	-20° to +70°C
STORAGE TEMP. RANGE	-40° to +125°C
HUMIDITY	0 to 90% non-condensing

INTERFACE

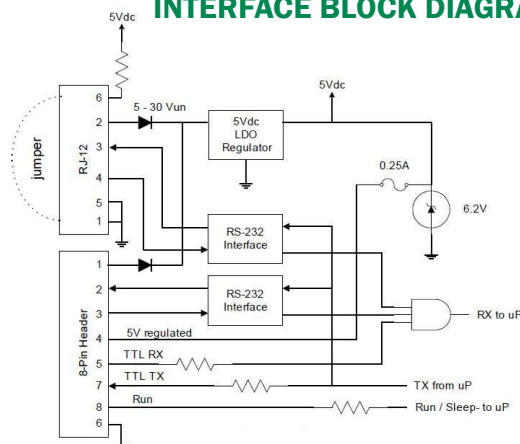| SIGNAL TYPE	RS232 or TTL
BAUD RATE	2400, 4800, 9600, or 19200 bps
CHARACTER FORMAT	8 data, no parity, 1 stop
INPUT BUFFER SIZE	90 characters
OUTPUT BUFFER SIZE	110 characters
OUTPUT FORMAT	NMEA 0183
OUTPUT DATA RATE	1 to 1200 sentences/min
OPERATING MODES	Continuous or sample
ANGLE UNITS	Degrees, mils, radians, 16-bit integer

PIN OUTS

RJ-12 JACK

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

8-PIN HEADER

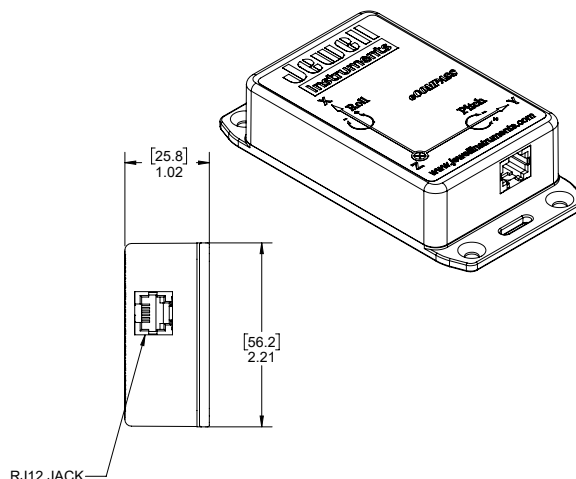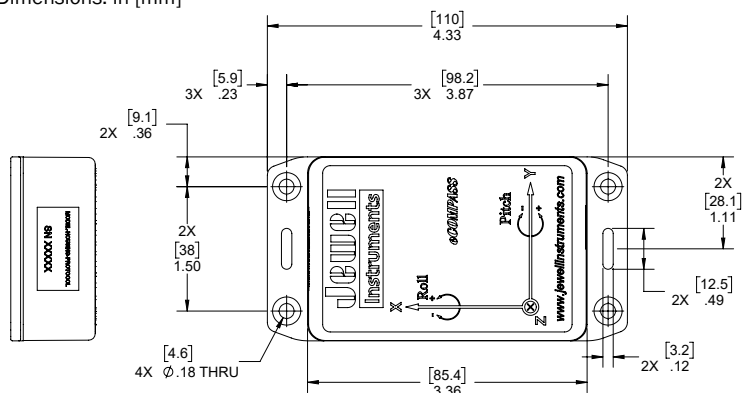| 1	UNREGULATED PWR
2	RS232 TX OUT
3	RS232 RX IN
4	REGULATED PWR
5	TTL RX IN
6	GROUND
7	TTL TX OUT
8	TTL RUN/SLEEP IN

INTERFACE BLOCK DIAGRAM

PRODUCT SPECIFICATIONS

MECHANICAL

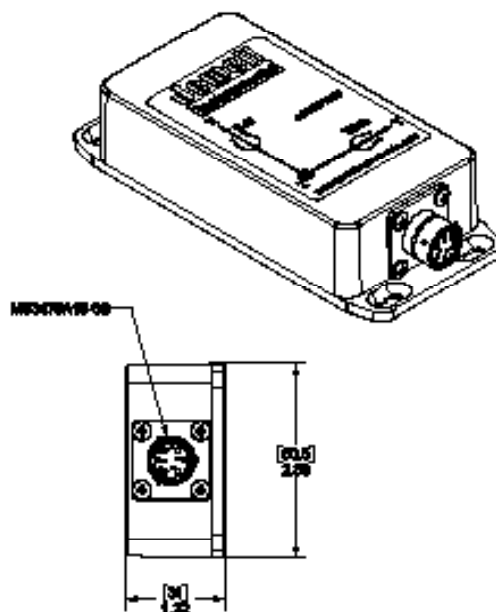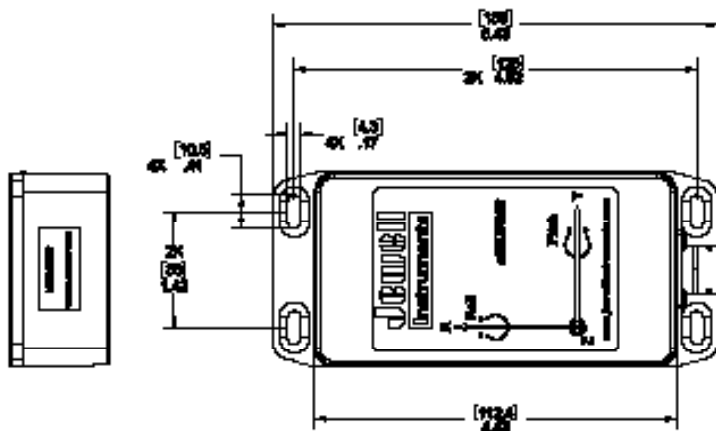|	PLASTIC ENCLOSURE	ALUMINUM ENCLOSURE
ENCLOSURE DETAILS	(ABS) Flame Retardant UL94 VO	Diecast Aluminum Alloy (Type 360.1)
PCB SIZE	1.6"W x 3.0"L x 0.6"/0.8"H (H required for tilt sensor)	
PCB MOUNTING	4 #4 screws, 1.4" x 2.2" spacing	
WEIGHT	3.2 oz. (90.7 g)	7.2 oz. (204.1 g)
CONNECTOR	6 pin RJ12 modular jack	8 pin, single-row 0.1" friction header

DIMENSIONS OF PLASTIC ENCLOSURE
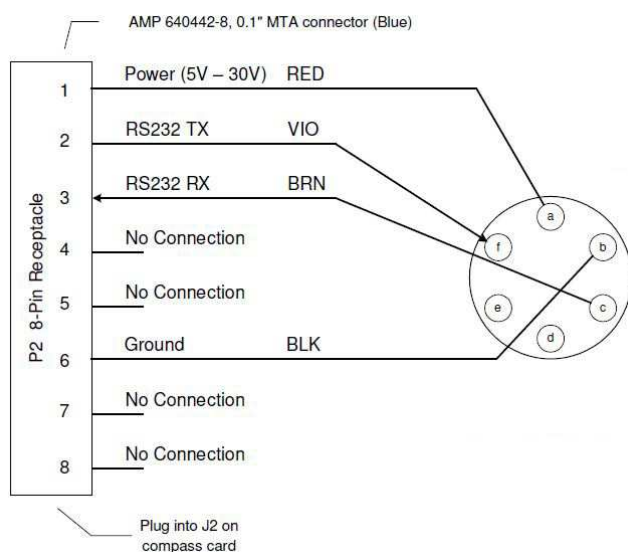
Dimensions: in [mm]
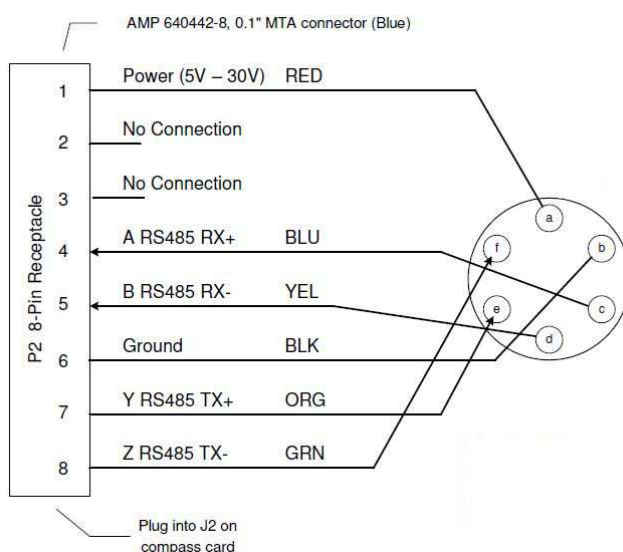

DIMENSIONS OF ALUMINUM ENCLOSURE

Dimensions: in [mm]

PRODUCT SPECIFICATIONS

RS-232 WIRING

AMP 640442-8, 0.1" MTA connector (Blue)

P2 8-Pin Receptacle

1	Power (5V – 30V)	RED
2	RS232 TX	VIO
3	RS232 RX	BRN
4	No Connection	
5	No Connection	
6	Ground	BLK
7	No Connection	
8	No Connection	

Plug into J2 on compass card

RS-485 WIRING

AMP 640442-8, 0.1" MTA connector (Blue)

P2 8-Pin Receptacle

1	Power (5V – 30V)	RED
2	No Connection	
3	No Connection	
4	A RS485 RX+	BLU
5	B RS485 RX-	YEL
6	Ground	BLK
7	Y RS485 TX+	ORG
8	Z RS485 TX-	GRN

Plug into J2 on compass card

ORDERING INFORMATION

RoHS VERSION	ENCLOSURE	MODEL #	PART #
RS232	PLASTIC	ECL-P/J-RS232-ROHS	02550403-ECL-001
	ALUMINUM	ECL-A/C-RS232-ROHS	02550403-ECL-003
TTL	PLASTIC	ECL-P/J-TTL-ROHS	02550403-ECL-002
	ALUMINUM	ECL-A/C-TTL-ROHS	02550403-ECL-004

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ISO 9001 CERTIFIED