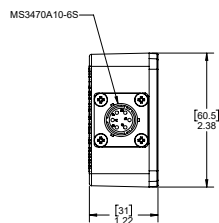
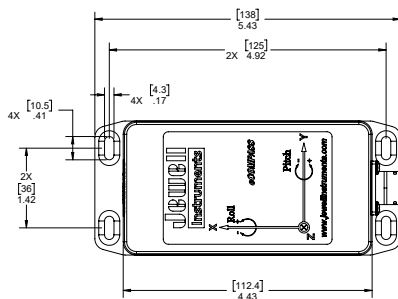


ECV-IMU eCompass Series

The Jewell ECV-IMU eCompass offers high accuracy in a small package. This low-cost, low power device provides stable azimuth, pitch, and roll measurements in dynamic conditions. This sensor consists of the following: 3-axis angular rate gyros, 3-axis accelerometer, 3-axis magnetometer and 2-axis electrolytic tilt sensor.

FEATURES:

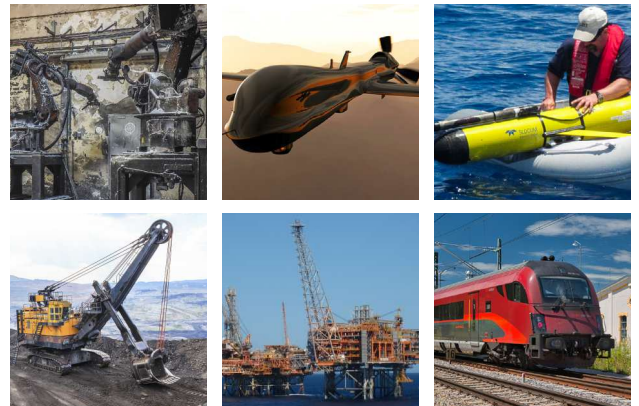
- Exceptional dynamic performance
- Precise factory calibration
- Wide operating range
- RS-485 output
- Fast response
- Low power



Dimensions: in [mm]

PIN OUT:

A	POWER (6V-45V)	D	Rx-
B	GROUND	E	Tx+
C	Rx+	F	Tx-



APPLICATIONS:

- Unmanned vehicles
- Robotics
- Platform stabilization
- Excavation machinery
- Rail





PERFORMANCE SPECIFICATIONS: ECV-IMU

PERFORMANCE

SENSOR	Tiltmeter	3-axis Accelerometer	3-axis Gyro	3-axis Magnetometer
INPUT RANGE	±40°	±16g	±250°/sec	±1.6 Oersted
IN-RUN BIAS STABILITY		0.25 mg/°C	<0.01°/sec	
NOISE DENSITY		130 µg/√Hz	<0.02°/sec√Hz	29nV/√Hz
AXIS MISALIGNMENT		1% FSO		±1% FSO
RESOLUTION	0.02°	60µg	<0.1°/sec	27µgauss
BANDWIDTH		2.9 KHz	2 KHz	5 MHz
NONLINEARITY	3% FSO	0.5% FSO	0.01 % FSO	0.05% FSO

ELECTRICAL

SUPPLY VOLTAGE	6-45 Vdc unregulated	
SUPPLY CURRENT	Idle	25mA
	Run	50mA

INTERFACE

DIGITAL OUTPUT INTERFACE	RS-485 (Continuous streaming)
BAUD RATE	4800, 9600, 19200, 38400, 57600, 76800, 115200 bps
CHARACTER FORMAT	8 data, no parity, 1 stop
INPUT BUFFER SIZE	100 characters
OUTPUT BUFFER SIZE	100 characters
OUTPUT DATA RATE	50 Hz IMU mode

(See Data Packet on pg. 3)

MECHANICAL

WEIGHT	90 grams in ABS box
DIMENSIONS	5.43" (138mm) x 2.38" (60.5mm) x 1.22" (31mm)
HOUSING & BASE MATERIAL	Anodized and Alodine Aluminum
CONNECTOR	8 pin, single-row, 0.1" friction header – RS-485

ENVIRONMENTAL

OPERATING TEMPERATURE	-50 °C to +110 °C
STORAGE TEMPERATURE	-55 °C to +150 °C
INGRESS PROTECTION	IP65
ROHS COMPLIANT	Yes

PERFORMANCE SPECIFICATIONS: ECV-IMU

DATA PACKET

BYTE OFFSET	NAME	DESCRIPTION	VALUE	Units
0	Header	Packet header	Hex 5AA5	
2	Length	Packet length	46	
3	Type	Packet ID	0	
4	Count	Packet counter	0-65535	
6	Data1	Accelerometer X-axis	± 16000	1.0 mg/count
8	Data2	Accelerometer Y-axis		
10	Data3	Accelerometer Z-axis		
12	Data4	Magnetometer X-axis	± 32000	0.1 mOe/count
14	Data5	Magnetometer Y-axis		
16	Data6	Magnetometer Z-axis		
18	Data7	Gyroscope X-axis	± 30000	0.01°/sec/count
20	Data8	Gyroscope Y-axis		
22	Data9	Gyroscope Z-axis		
24	Data10	eTilt X-axis	± 4500	0.01°/count
26	Data11	eTilt Y-axis		
28	Data12	Vibration X-axis	± 16000	Approx. 1.0 mg/count
30	Data13	Vibration Y-axis		
32	Data14	Vibration Z-axis		
34	Data15	PC Board Temp	-500 to 1200	0.1 °C/count
36	Data16	Input Volts	0 to 45000+	milli-Volts
38	Data17	Startup Status	Hex 0 to FFFF	flags
40	Data18	Operating Status	Hex 0 to FFFF	flags
42	Data19	Serial Status	Hex 0 to FFFF	flags & code
44	Checksum	16-bit checksum	0 to 65535	



MATING CONNECTOR AND CABLE ASSEMBLIES

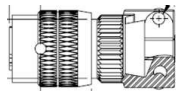
RS-485 TO DB9 & POWER CABLE

PART #	LENGTH
95059-01	78.5 in (~2m)

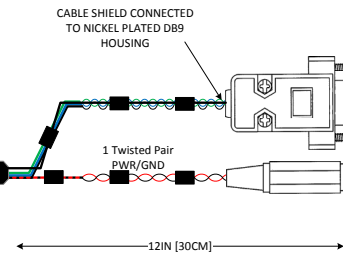
NOTE: Longer cable length available upon request

6-pin AMP Male Pinout

- A: Pwr (DC)
- B: GND
- C: RX+
- D: RX-
- E: TX+
- F: TX-



Pin view



DB9 Female Pinout

- 1: RX-
- 2: RX+
- 3: TX+
- 4: TX-
- 5: GND
- 6,7,8,9: no connect

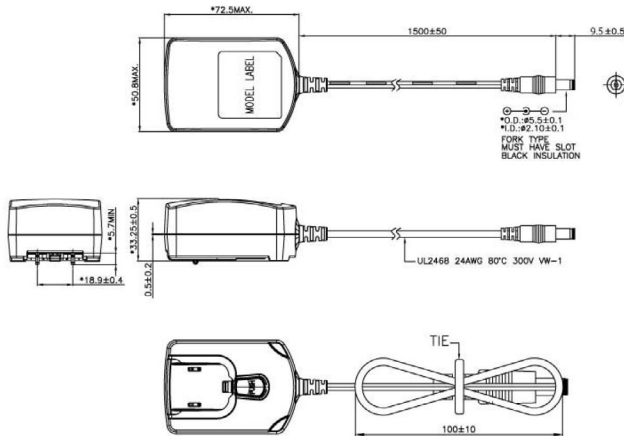
DC PWR & GND



CENTER (+)
RING (-)
5.5MM O.D. X 2.1MM

OTHER ACCESSORIES

110-240VAC TO 12VDC TRANSFORMER



PART # 00254-02

USB TO RS-485 CONVERTER

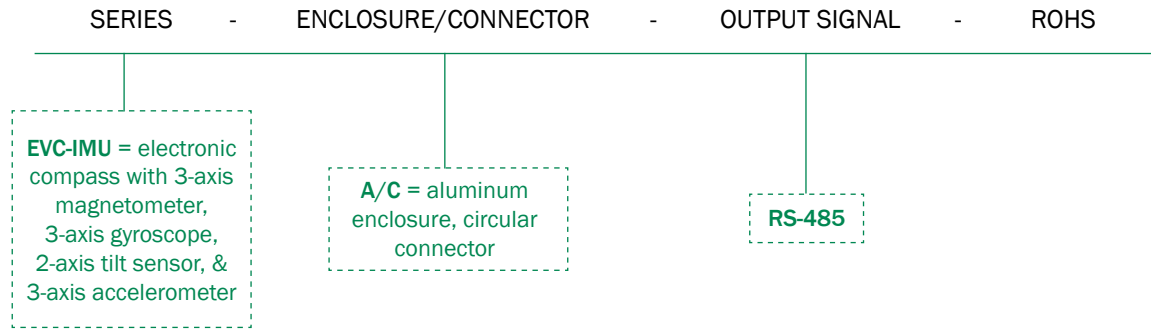


DIMENSIONS:
5 x 4 x 2.5 in

PART # F849284



ORDERING INFORMATION



EXAMPLE: ECV-IMU-A/C-RS485-ROHS

850 Perimeter Road Manchester, NH 03103 USA

SENSORS: 800.227.5955

www.jewellinstruments.com | sensors@jewellinstruments.com

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