

# IEPE signal conditioner

## Model 4416C



### Key features

- Low noise operation
- Portable compact size
- Selectable gain of 1, 10 or 100
- Status indicator LED
- 2nd order Sallen Key low pass filter

### Description

Model 4416C IEPE signal conditioner is a small, battery-operated, low noise signal conditioner for use with IEPE transducers. It supplies power to the transducer from a constant current source, and provides a selectable gain of 1, 10 or 100. The conditioner is powered by a rechargeable Li-Ion battery. An LED status indicator informs the user of a short, open, or normal operating conditions. Additionally the unit features a second order Sallen Key low pass filter.

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### Specifications

#### Input characteristics

Type	Single-ended, constant current two-wire system
Input impedance	>20 k $\Omega$
Excitation current	4.7 mA ( $\pm 5\%$ )
Maximum input voltage	7.07 Vpk (5 vrms)
Compliance voltage	24V ( $\pm 1\%$ )
Transducer status LED	Green = OK, Red = fault (open or short circuit)

#### Output characteristics

Type	Single-ended, one side connected to circuit ground
Output impedance	<10 $\Omega$ , in series with at least 47 $\mu$ F
Linear output voltage (Min)	10Vpk (7.07 V rms)
Linear output current (Max)	2mA

#### Transfer characteristics

Frequency range	Gain = 1: -5% 0.3 Hz to 30 kHz; -3dB 0.1 Hz to 100 kHz Gain = 10: -5% 0.5 Hz to 30 kHz; -3dB 0.15 Hz to 100 kHz Gain = 100: -5% 0.5 Hz to 20 kHz; -3dB 0.15 Hz to 50 kHz
Filter out	
Filter In	LP filter (as supplied); 2nd order Sallen Key Gain = 1 & 10: >-5% @ 10 kHz; > -3dB @ 30 kHz Gain = 100: >5% @ 10 kHz; > -3dB @ 18 kHz x1, x10 and x100, user selectable
Gain	$\pm 1\%$
Gain Accuracy	
Harmonic distortion	<1.0%, 20Hz to 30kHz, 100mV – 10V pk.
Noise (filter out)	Gain = 1: <20 $\mu$ V rms Gain = 10: <200 $\mu$ V rms Gain = 100: <2mV rms

#### Power

Batteries	Internal Lithium Ion
Typical battery life	8 hours minimum continuous use
External power supply	12 VDC (1.5A minimum)
Recharge cycle time	Unit off, approximately 3 hours
Charger LED indication	Red = battery low, Yellow = battery charging

#### Physical

Charger connector	2.5mm male jack plug
Dimensions	3.3" W x 1.4" H x 7.1" D (82 mm x 35 mm x 179 mm)
Weight	13 oz (370 gm) $\pm 5\%$
Connections	BNC for both Input and Output
Case	Aluminum, black painted

#### Environmental

Temperature	
Operating (battery being discharged)	-10°C to +60°C (+14°F to +140°F)
Operating (battery being charged)	-10°C to +45°C (+14°F to +113°F)
Storage (Li-Ion battery)	-5°C to +35°C (23°F to +95°F)
	De-rated for long-term storage for lithium batteries -40°F to +122°F (-40°C to +50°C)
Humidity	95% R.H.
Compliance	ROHS to 2011/65/EU CE to EN61326-1:2013; CFR47 Pt 15 B Class A.

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### Accessories

Product	Description	4416
IM4416C	Instruction Manual	Download from website
EHM2107	Universal power supply 12 VDC, 2 AMP with adaptors for USA, Europe, Japan and Australia	Included
EJ21	10-32 to BNC adapter	Included
EHM2106	Replacement Battery	As required
EHM2107	Universal power adapter	As required
CS500	Calibration certificate	Included

### Ordering information

1. Maintain high levels of precision and accuracy using Endevco's factory calibration services. Call Endevco's inside sales force at 866-ENDEVCO for recommended intervals, pricing and turn-around time for these services as well as for quotations on our standard products.