ACCELEROMETERS FOR HEALTH & USAGE MONITORING SYSTEMS (HUMS)

PCB PIEZOTRONICS
AN AMPHENOL COMPANY

ENDEVCO
AN AMPHENOL COMPANY

pcb.com | endevco.com

ACCELEROMETERS FOR HEALTH & USAGE MONITORING SYSTEMS (HUMS)

Health and Usage Monitoring Systems (HUMS) used for Condition Based Maintenance (CBM) programs are an effective predictive maintenance strategy for helicopter gearboxes and drive train, gas turbine engines and some fixed wing aircraft. Due to the large number of critical flight safety systems on aircraft, particularly rotating systems on helicopters, Vibration Health Monitoring (VHM) technology is effective in detecting and thus preventing catastrophic mechanical failures. Accelerometers used in HUMS typically have specialized requirements for performance, reliability, and packaging, depending on the particular aircraft and standards involved.

Manufactured in our AS9100:2016 QMS Certified by DQS, Inc. facility, this brochure showcases our ICP® and charge output accelerometers in several hermetically sealed configurations. While this sensor family represents a sampling of solutions used for this critical application, advanced design capabilities permit PCB to customize solutions specific to your requirements. Please inquire to learn which solution is right for your application.

HIGHLIGHTS

- Accelerometers tailored for mechanical diagnostics and rotor track & balance
- Case isolated to reduce EMI & ground loop interference
- ICP® & charge output operations
- Can be qualified to RTCA/DO-160 & MIL-STD-810

APPLICATIONS

- Mechanical Diagnostics (CBM & VHM)
- Rotor Track & Balance (RTB)
- Engine Vibration Monitoring (EVM) Systems
- Electric Vertical Take Off and Landing (EVTOL)
- Urban Air Mobility
- Hybrid and Electric Aircraft Engine Testing

SINGLE AXIS ICP® FOR MECHANICAL DIAGNOSTICS

UHT-12™ MINIATURE ICP® ACCELEROMETER

MODEL 320C52

Sensitivity: 10 mV/g
(1.02 mV/(m/s²))

Measurement Range: ±500 g
(±4905 m/s² pk)

Frequency Range: (±5%) 1 to 10000 Hz

Size L x W X H: 0.65 x 0.38 X 0.23 in.
(16.4 x 9.6 x 5.84 mm.)

UHT-12™ MINIATURE ICP® ACCELEROMETER

MODEL 320C53

Sensitivity: 1 mV/g
(0.102 mV/(m/s²))

Measurement Range: ±5000 g
(±49050 m/s² pk)

Frequency Range: (±5%) 1 to 5000 Hz

Size L x W X H: 0.65 x 0.38 X 0.23 in.
(16.4 x 9.6 x 5.84 mm.)

STUD MOUNT CERAMIC SHEAR ICP® ACCELEROMETER

PCB MODEL 337A30

Sensitivity: 10 mV/g
(1.02 mV/(m/s2))

Measurement Range: ± 500 g
(±4905 m/s² pk)

Frequency Range (±10%):
1 to 15000 Hz

LOW PROFILE INDUSTRIAL ICP® ACCELEROMETER

PCB MODEL 602D01

Sensitivity: 100 mV/g
(10.2 mV/(m/s²))

Measurement Range: ±50
(±490 m/s²)

Frequency Range (±3dB):
0.5 to 8000 Hz

UNIAXIAL ACCELEROMETER

PCB MODEL 355A63

Sensitivity: 100 mV/g
(10.2 mV/(m/s2))

Measurement Range: ± 50 g

Frequency Range (±10%):
3 to 3000 Hz

MINIATURE RING-STYLE ICP® ACCELEROMETER

PCB MODEL 355A44

Sensitivity: 10 mV/g
(1.02 mV/(m/s²))

Measurement Range: ±500 g
(±4905 m/s² pk)

Frequency Range: (±5%):
1 to 5500 Hz

RING-STYLE ICP® ACCELEROMETER

PCB MODEL 355A40

Sensitivity: 10 mV/g
(1.02 mV/(m/s²))

Measurement Range: ±500 g
(±4905 m/s² pk)

Frequency Range (±5 %):
1 to 20000 Hz

TRIAXIAL ICP® FOR MECHANICAL DIAGNOSTICS

TRIAXIAL THRU-HOLE MOUNTING ICP® ACCELEROMETER

PCB MODEL 354B04

Sensitivity: 10 mV/g
(1.02 mV/(m/s²))

Measurement Range: ±500 g
(±4905 m/s² pk)

Frequency Range (±5%):
0.4 to 10,000 Hz

PCB MODEL 354B05

Sensitivity: 100 mV/g
(10.2 mV/(m/s²))

Measurement Range:
±50 g (±491 m/s² pk)

Frequency Range (±5%):
0.4 to 10,000 Hz

PRECISION SIDE EXIT TRIAXIAL INDUSTRIAL ACCELEROMETER

PCB MODEL 629A30

Sensitivity: 10 mV/g
(1 mV/(m/s²))

Measurement Range: ±500 g
(±4905 m/s²)

Frequency Range (±3dB):
0.8 to 8000 Hz

PCB MODEL 629A31

Sensitivity: 100 mV/g
(10.2 mV/(m/s²))

Measurement Range: ±50 g
(±490 m/s²)

Frequency Range (±3dB):
0.8 to 8000 Hz

TRIAXIAL INDUSTRIAL ICP® ACCELEROMETER

PCB MODEL 629A11

Sensitivity: 100 mV/g
(10.2 mV/(m/s²))

Measurement Range: ±50 g
(±490 m/s²)

Frequency Range (±3dB):
0.8 to 8000 Hz

TRIAXIAL IEPE ACCELEROMETER WITH 2 POLE LPF

ENDEVCO MODEL 65HTLPF-10-02 & 65HTLPF-10-10

Sensitivity: 10 mV/g | 1.02 mV/(m/sec²)

Measurement Range: ±500 g (±4905 m/sec²)

Frequency Range (±5%): 5 to 1000 Hz / 5 to 5000 Hz

Any potential picked up through cable shielding must be properly grounded at the signal conditioning (i.e., vibration monitoring system) end. If that cable potential is not transferred to the aircraft ground, potential can build and leak into the measurement signal, creating a noisy output signal. PCB's Model 010AY010NF cable is a 4-conductor, shield and grounded cable that helps reduce noisy data and works with our Model 354B04 & 65HTLPF-10-10 accelerometers.

CHARGE MODE FOR HIGHER TEMPERATURES

UHT-12™ HIGH TEMPERATURE ACCELEROMETER

PCB MODEL EX600B13

- Sensitivity: 100 mV/g (10.2 mV/(m/s²))
- Sensing Element: UHT-12™
- Measurement Range: ±50 g (±490 m/s²)

MODEL EX600B14

- Sensitivity: 10 mV/g (1.02 mV/(m/s²))
- Sensing Element: UHT-12™
- Measurement Range: ±500 g (±4900 m/s²)

HIGH TEMPERATURE ACCELEROMETER

ENDEVCO MODEL 6222S

- Sensitivity: 100 pC/g (10.2 pC/(m/sec²))
- Frequency Range: 6000 Hz
- Measurement Range: 500 g pk (4905 m/sec² pk)

CHARGE OUTPUT ACCELEROMETER

PCB MODEL 357C71

- Sensitivity: 10 pC/g (1.02 pC/(m/s²))
- Measurement Range: ±1000 g (±9810 m/s² pk)
- Frequency Range (±5%): 4000 Hz

MODEL 357C72

- Sensitivity: 50 pC/g (5.1 pC/(m/s²))
- Measurement Range: ±500 g (±4905 m/s² pk)
- Frequency Range (±5%): 2500 kHz

MODEL 357C73

- Sensitivity: 100 pC/g (10.2 pC/(m/s²))
- Measurement Range: ±300 g (±2943 m/s² pk)
- Frequency Range (±5%): 2000 Hz

CHARGE MODE FOR HIGHER TEMPERATURES

MINIATURE (2 GM) RING-STYLE CHARGE OUTPUT ACCELEROMETER

PCB MODEL 357B06

Sensitivity: 5 pC/g
(0.51pC/(m/s²))

Measurement Range: ±500 g
(±4905 m/s² pk)

Frequency Range (+5%): 10000 Hz

Size L x W X H: 0.65 x 0.38 X 0.23 in.
(16.4 x 9.6 x 5.84 mm.)

MINIATURE RING-STYLE CHARGE OUTPUT ACCELEROMETER

PCB MODEL 357M113

Sensitivity: 5 pC/g
(0.51pC/(m/s²))

Measurement Range: +/- 2000 g
(19,620 m/s² pk)

Frequency Range (+5%): 10000 Hz

UHT-12™ CHARGE OUTPUT ACCELEROMETER

PCB MODEL 357A100

Sensitivity: 5.0 pC/g
(0.510 pC/(m/s²))

Measurement Range: ±200 g
(±1962 m/s² pk)

Frequency Range (+5%): 4000 Hz

UHT-12™ CHARGE OUTPUT ACCELEROMETER

PCB MODEL EX357E90

Sensitivity: 5 pC/g (.51 pC/(m/s²))

Measurement Range: ±1000 g (±9800 m/s² pk)

Frequency Range: (±5%) 3000 Hz

Active in Vertical Direction

UHT-12™ CHARGE OUTPUT ACCELEROMETER

PCB MODEL EX357E91

Sensitivity: 5 pC/g (.51 pC/(m/s²))

Measurement Range: ±1000 g (±9800 m/s² pk)

Frequency Range: (±5%) 3000 Hz

Active in Horizontal Direction

UHT-12™ CHARGE OUTPUT ACCELEROMETER

PCB MODEL EX357E92

Sensitivity: 2.3 pC/g 0.23 pC/(m/s²))

Measurement Range: ±1000 g (±9800 m/s² pk)

Frequency Range (±5%): 3000 Hz

Active in Vertical Direction

UHT-12™ CHARGE OUTPUT ACCELEROMETER

PCB MODEL EX357E93

Sensitivity: 2.3 pC/g (0.23 pC/(m/s²))

Measurement Range: ±1000 g (±9800 m/s² pk)

Frequency Range (±5%): 3000 Hz

Active in Horizontal Direction

PCB PIEZOTRONICS
AN AMPHENOL COMPANY

3425 Walden Avenue, Depew, NY 14043 USA

pcb.com | info@pcb.com | 800 828 8840 | +1 716 684 0001

ENDEVCO
AN AMPHENOL COMPANY

10869 NC Highway 903, Halifax, NC 27839 USA

endevco.com | sales@endevco.com | 866 363 3826

AD-HUMS-0623