EDR-L32™

RUGGED, LOW-POWER, HIGH-PRECISION LOW-G MEASUREMENT FOR UNATTENDED MONITORING

Instrumented Sensor Technology



- Triaxial MEMS accelerometer with integrated gyroscope
- 32-bit, low-power processor with native USB support
- 32 MB nonvolatile flash memory
- 32 g full scale range
- Engineering-grade data
- Temperature, humidity and pressure sensor
- Triggered or continuous recording capability
- 9600 mAh rechargeable lithium battery with protection and charging circuitry
- Real-time clock with automatic PC synchronization
- User selectable +/- 4, 8, 16, 32g full scale range
- Continuous recording capable up to several months
- Real-time clock with automatic PC synchronization
- Configurable Auto-aero offset correction for precise low-g triggering and gravity vector removal
- Two status indicators and protected manual pushbutton
- Sealed USB-C interface for setup, charging, download and firmware service
- IP67 housing design; production validation includes vibration and 1 m / 30 min immersion testing
- High-g shock and vibration survivability
- DynaMax™ analysis software-compatible & included
- GeoSynch™ GPS event correlation compatible
- Affordable professional performance

The EDR-L32™ is designed for unattended measurement of transportation, packaging, aircraft, machinery and structural environments. It combines triggered shock capture,time-sampled, near-continuous or continuous vibration recording, environmental logging and DynaMax™ analysis in a compact, rugged instrument intended for cost-effective multi-unit deployments.

Instrumented Sensor Technology

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Flexible Recording for Shock, Vibration and Environmental Data

The EDR-L32™ is optimized for low-g transportation and in-use monitoring while retaining fixed-length event capture for shock and impact measurements.

Physical and Environmental

Records X, Y and Z acceleration when any enabled axis exceeds the programmed threshold. User-selectable pre-trigger history captures conditions before the event.

Time-sampled vibration

A programmable recording percentage inserts controlled dead time between records, spreading available memory across long truck, rail, sea or aircraft deployments.

Contiguous recording mode

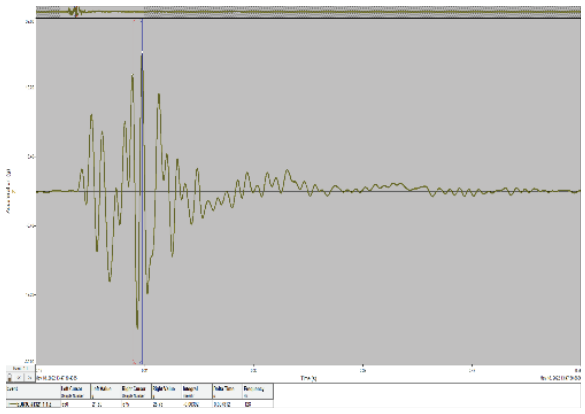
A zero-g trigger records consecutive fixed-duration waveform blocks, subject only to brief internal storage and auto-zero intervals.

Slow environmental tracking

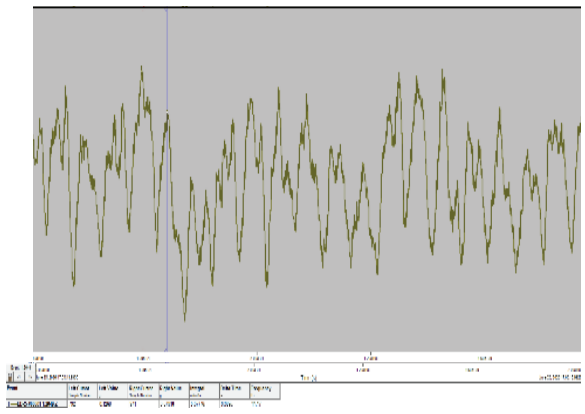
Time-stamped temperature, relative humidity, atmospheric pressure and battery information document the complete transport or operating environment.

User-Selectable Recording Controls

Acceleration	Event capture	Data management
Sample rate	Event duration	Fill-and-stop or overwrite
Full-scale range	Pre-trigger percentage	Estimated events / recording time
Trigger threshold	Recording-time percentage	Environmental interval
Trigger axes	Scheduled or pushbutton start/stop	Saved setup files



Precision Event Triggered Transient Shock Capture



Continuous or Triggered Low-g Vibration

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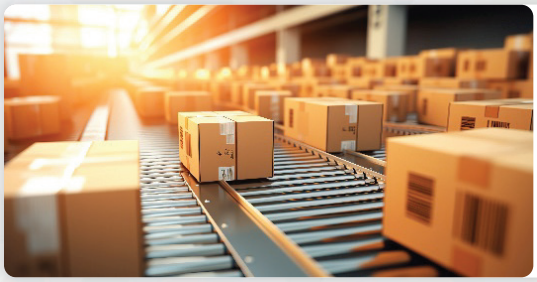
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Applications — Transportation, Shipment and Package Handling

1. Shipment Monitoring

Document shock, vibration and environmental conditions during truck, rail, ocean and air shipment. Identify handling events, compare routes and carriers, and support shipment-quality investigations with time-tagged waveform data.





2. Packaging & Handling Monitoring

Capture drops, impacts, sorting-system vibration and distribution-center handling. DynaMax™ can calculate event statistics, PSDs, drop-height estimates, package orientation information and other engineering results from the recorded triaxial data.

Built for Multi-Unit Deployment

Compact size, long battery life, USB-C operation and straightforward configuration make the EDR-L32™ suitable for fleet studies, repeated shipments and larger instrument deployments where high-end laboratory recorders are impractical.

3. In-Use Environment Characterization

Install the recorder on aircraft, vehicles or operating equipment to characterize real-world vibration, shock and environmental exposure. Its low-g sensitivity and long-duration recording modes support flight, cabin, cargo-compartment and vehicle studies, including large multi-unit programs.





4. Machinery Monitoring

Record operating vibration, transient events and ambient conditions on production machinery and field equipment. Use the results for troubleshooting, condition studies, maintenance planning and development of representative laboratory tests.

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From Field Data to Engineering Decisions

DynaMax™ provides time-history review, event tables, PSD, filtering, integration, jerk, probability-density and other engineering analysis tools for interpreting EDR-L32™ data.

Applications — Aerospace Transport and Structural Monitoring

5. Aerospace Hardware Transport Monitoring

Monitor sensitive aerospace assemblies, avionics, propulsion hardware and support equipment during factory movement, ground transport, air shipment and integration. Time-tagged shock, vibration and environmental records help document handling quality and identify hazardous segments.





6. Structural & Ground-Vibration Monitoring

Measure structures and facilities exposed to rail traffic, mining, blasting, construction or machinery vibration. Use unattended event triggering and time-sampled recording to characterize bridges, buildings, pipelines and other field assets over extended periods.

GeoSynch™ Compatible

EDR-L32™ data files are designed to support IST GeoSynch™ GPS event correlation after download, allowing engineers to associate recorded events with shipment locations when an external GeoSynch™ tracker is deployed.

Simple Setup, Download and DynaMax™ Analysis



Configure • deploy • record • download • analyze • analyze • report

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EDRL32COM setup utility: Read and write recorder configurations; synchronize the clock; display battery, memory and status information; save setups for repeated use.

Protected data download: Download all or selected sessions without automatically erasing recorder memory. Validate data and create DynaMax™-compatible UDF files.

Open data access: Export selected or all acceleration events to CSV or delimited ASCII, including event timestamps, units, setup information and environmental data.

DynaMax™ Suite: View triaxial waveforms, create event tables and scatter plots, calculate PSDs and SRS, apply filtering, integrate to velocity/displacement, evaluate jerk and export results.

Gyroscope summaries: Event-level angular-rate summaries report peak rotation, tip-over indications and initial/final orientation information.

Engineering Design Priorities

LOW POWER	HIGH VALUE	COMPATIBLE	FIELD READY
Months of unattended service	Cost-effective multi-unit deployment	Direct UDF and DynaMax™ workflow	Rugged, sealed and rechargeable

EDR-L32™ Specifications

CATEGORY	PARAMETER	SPECIFICATION
DATA ACQUISITION	Measurement channels	3-axis internal acceleration; environmental channels; battery; optional event-level gyro summaries
	Accelerometer	triaxial accelerometer + gyroscope
	Acceleration ranges	User-selectable ±4, ±8, ±16 and ±32 g
	Digitization	16-bit high-resolution mode after wakeup
	Sample rates	10, 25, 50, 100, 200, 400, 1300, 1600 and 5000 Hz, or nearest supported sensor rates
	Common sampling	Same sample rate on X, Y and Z
TRIGGERING & EVENTS	Trigger source	Acceleration threshold on any enabled axis; common programmed threshold
	Trigger levels	0, 0.01, 0.05, 0.1, 0.25, 0.5, 0.75, 1, 1.5, 2, 3, 4, 5, 10 and 15 g, subject to selected full-scale range
	Event durations	25, 50, 100, 250, 500, 1000, 2000 and 4000 ms
	Pre-trigger	Off, 10%, 25% or 50% of event length
	Re-arm	Automatic after each recorded event
	Zero-g trigger	Consecutive fixed-length event blocks for contiguous or time-sampled vibration recording
	Recording-time percentage	10% to 100% selection for controlled dead time / time-sampled recording
	Auto-zero	Automatic DC-offset / orientation-change correction between and during events

Specifications subject to change without notice

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CATEGORY	PARAMETER	SPECIFICATION
SIGNAL CONDITIONING	Noise floor	Approximately 0.004–0.014 g RMS, dependent on range, sample rate, filter mode and bandwidth
	Maximum-range noise	≤0.014 g RMS at ±32 g and maximum nominal bandwidth
	Frequency response	DC to approximately 40% of selected sample frequency
	Maximum usable bandwidth	Approximately 1.6 kHz at 4,000 samples/second
	Range effect on bandwidth	No significant dependence
ENVIRONMENTAL	Temperature	-40 to +70 °C measurement and operating target; ±1 °C typical; 0.1 °C resolution
	Relative humidity	0 to 100% RH; ±3% RH typical; 0.1% RH resolution
	Atmospheric pressure	Integrated atmospheric pressure measurement
	Environmental timing	Selectable interval; time-stamped and associated with acceleration events
MEMORY & TIME	Memory	32 MB nonvolatile flash
	Clock	Real-time clock; automatic PC synchronization; timestamps stored in an unambiguous time basis
	Memory modes	Fill-and-stop or wrap
	Configuration estimate	EDRL32COM calculates estimated event capacity or zero-trigger recording duration
POWER & INTERFACE	Battery	9600 mAh rechargeable lithium battery
	Power management	Ultra-low-power sleep; RTC preservation while battery reserve remains
	USB	USB-C for charging, communication, setup, download and firmware service
	Controls	Manual pushbutton; recording/communication and battery-status indicators
SOFTWARE & DATA	PC utility	EDRL32COM Windows setup, status, clock, download, CSV export and firmware utility
	Primary data file	Direct DynaMax™-compatible UDF output
	Open export	CSV or tab/comma-delimited ASCII with timestamps, X/Y/Z data, units, setup and environmental data
	DynaMax™ analysis	Waveforms, event table, PSD, SRS, filtering, probability density, integration, jerk, statistics, scatter plots and reporting and more
	GeoSynch™	Compatible with external GeoSynch™ GPS route/event correlation workflow
MECHANICAL	Housing	Compact black polymer enclosure
	Ingress protection	IP67 design target; dust protection and immersion to 1 m for 30 minutes
	Mounting	Integral mounting features; accessories and dimensions TBD
	Operating temperature	-40 to +70 °C
	Mechanical Shock Resistance	Survives repeated 1.2 m (4 ft) free-fall drops onto concrete on faces, edges and corners without loss of function, stored data, enclosure integrity or USB communication.
	Random Vibration Durability	NAVMAT P-9492 broadband random vibration profile, 20–2,000 Hz, approximately 6 g RMS, 10 minutes per axis, three axes, non-operating. No structural damage, data loss or permanent functional degradation.
	Operational Vibration	3-4 g RMS broadband random vibration while recording
	Radiated Emissions	DO-160C compliant
DIMENSION	Size	4.5” x 2.9” x 0.9”
	Weight	6 oz

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