# EDR-15 FIELDDAQ™

## 15-CHANNEL AUTONOMOUS FIELD DATA ACQUISITION SYSTEM

# Laboratory-Quality Dynamic Data Acquisition. Anywhere.

**• 15 IEPE Channels • 50 kS/s/Channel • 160 GB Onboard Storage • 7+ Days Autonomous Operation**

## Key Features

- 15 simultaneous IEPE compatible high-speed input channels
- Programmable sample rates to 50 kS/s per channel
- 7+ days autonomous battery operation*
- 160 GB total nonvolatile onboard storage
- 16-bit waveform acquisition
- Advanced programmability features
- No laptop required during recording
- No input power required during autonomous recording
- No custom cabling or wiring harnesses needed, standard BNC inputs
- Single USB connection for system setup and data download
- Multiple EDR-15s can be party-lined for higher channel count synched-acquisition
- Supplied with IST's DynaMax™ Engineering Analysis Software
- Rechargeable lithium-ion battery, rugged portable enclosure

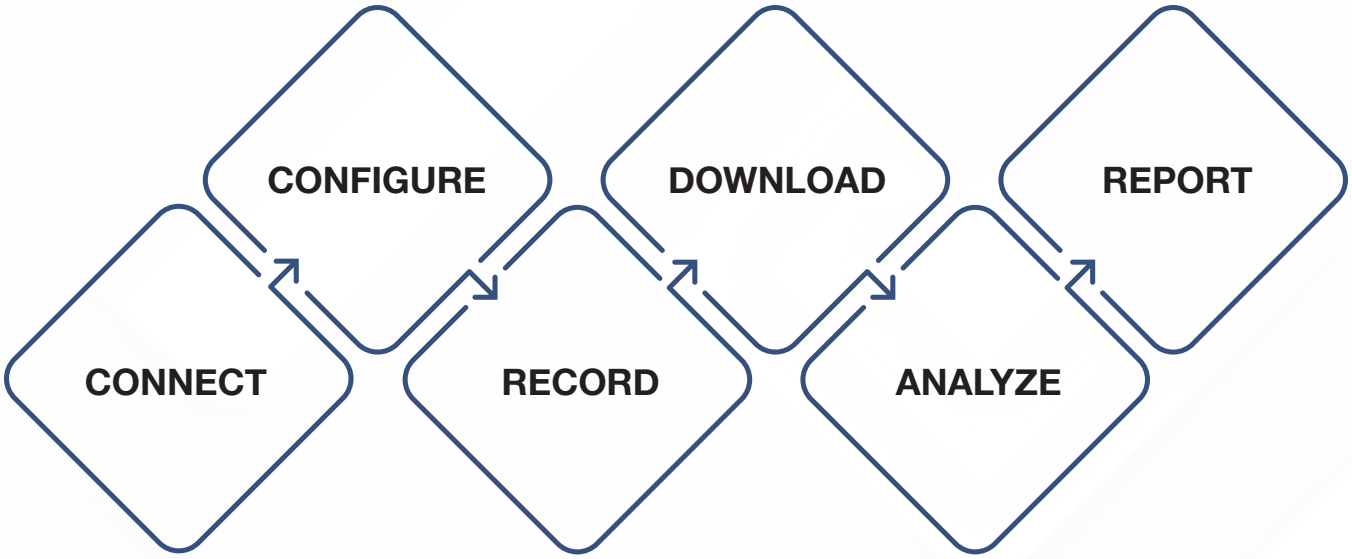
*(*) Actual battery operating time dependent upon channel configuration, sensor excitation current, sample rate, recording methodology and operating conditions.*





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# FIVE INDEPENDENT 3-CHANNEL ACQUISITION BANKS

The EDR-15 FieldDAQ™ architecture divides its 15 measurement channels into five independently powered three-channel acquisition banks. This allows the user to configure the system for the number of channels required by the application rather than operating unnecessary acquisition electronics, further reducing power consumption and extending battery life.

## Typical configurations

| | | | |
|---|---|---|---|
| **3 Channels** | One triaxial accelerometer or other sensors | **12 Channels** | Four triaxial accelerometers or other sensors |
| **6 Channels** | Two triaxial accelerometers or other sensors | **15 Channels** | Five triaxial accelerometers or other sensors |
| **9 Channels** | Three triaxial accelerometers or other sensors | | |

# Applications

## Aerospace & Defense Testing

Record vibration, shock and other dynamic environments during test flights, ground testing, transportation, launch, landing and deployment. Acquire multiple measurement locations simultaneously without requiring a computer at the test article or platform. Use EDR-15FieldDAQ™ for onboard, unattended autonomous recording. Long-life, battery powered standalone operation.



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## Vehicle & Transportation Testing

Instrument vehicles, trailers, railcars, aircraft, heavy equipment and transported payloads with multiple accelerometers. Record real-world operational environments continuously or through programmable event capture.





## Field-to-Laboratory Test Development

Measure actual service environments at multiple locations and use the resulting data to develop laboratory vibration and shock tests.

**Capture the environment in the field. Analyze it in DynaMax™. Recreate it in the laboratory.**

## Structural & Machinery Measurements

Measure vibration simultaneously at multiple locations on structures, machinery, equipment and test articles. Evaluate source-response relationships and transmissibility between measurement locations.



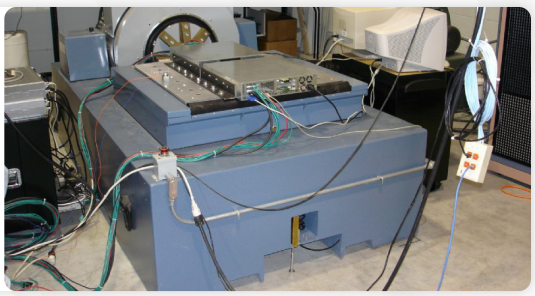


## Research & Product Development

Capture real-world multi-point dynamic environments for product validation, design verification, qualification testing and troubleshooting.

## Laboratory DAQ

Use the EDR-15 as a portable 15-channel IEPE laboratory DAQ for vibration, shock, strain, pressure, resonance, transmissibility and other dynamic measurements—then disconnect the computer and take the same instrument into the field.





## Blast Overpressure & Shock Wave Propagation Analysis

15-channel, high-speed acquisition of blast pressure waveforms, peak overpressure, shock wave arrival times, and propagation characteristics using compatible acoustic pressure transducers.

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# EDR-15 FieldDAQ™

- No Cloud Required
- No Cellular Subscription
- No Field Laptop Required
- No External Power Required
- No special cabling or wiring harnesses
- No Matlab or Python Needed

## EDR-15FieldDAQ™ RECORDING TIME TABLE

| BANDWIDTH | SAMPLE RATE (S/sec) | RECORDING TIME (Days) |
|---|---|---|
| 50 Hz, 500 Hz | 100 Hz, 1,000 Hz | 600, 60 |
| 5,000 Hz, 10,000 Hz | 10,000Hz, 20,000 Hz | 6, 3 |
| 25,000 | 50,000 | 1. 2 |

## DYNAMAX™ ENGINEERING ANALYSIS SOFTWARE INCLUDED

The EDR-15 FieldDAQ™ works directly with IST's DynaMax™ Software, providing an integrated path from field acquisition through engineering analysis.

**Analysis capabilities include:**

- Multi-channel time-history waveform display and manipulation
- Power Spectral Density (PSD)
- Shock Response Spectrum (SRS)
- Transmissibility
- Digital filtering low pass, high pass, bandpass, bandstop
- Pre-processing mean removal, linear trend removal, and ¼ sine taper options
- Waveform differentiation and integration
- Jerk analysis
- Time-stamped, tabulated, triggered-event data summaries
- Gobal file statistical summaries
- Powerful scatter plot editing capabilities
- Summary event table calculations RMS, peak, max, min, average, crest factor and ΔV measurements for each triggered event
- Probability density functions
- CSV data export
- Built-in Custom C++ scripting for advanced programming

## EDR-15 FieldDAQ™ Recording Methodologies and Setup Control Parameters

The EDR-15 instrument offers advanced recording control parameters (RCPs) designed to meet a wide variety of measurement and testing applications and provide wide user flexibility in instrument configuration. In addition to being supplied with the IST DynaMax™ engineering software package, a dedicated setup and data download module EDR15COM is provided which facilitates EDR-15 RCP setup, data communication, data download, and real-time recording status. EDR15COM enables users to easily save and recall setup file configurations which allows for repeated use across similar applications. Subsequently data files are quickly and conveniently processed and analyzed in DynaMax™ suite.

### Signal Conditioning

- IEPE excitation
- Selectable constant current
- Adjustable gain, offset and full scale range
- Selectable 8th order elliptical anti-alias filtering
- Filter bypass for high shock
- 16-bit precision
- Initial input channel auto-level function

### Trigger Sources

- Signal amplitude triggering (SAT)
- ΔV trigger
- External input TTL trigger
- Time interval triggering (TIT), scheduled
- Simultaneous SAT and TIT triggering
- Trigger latch feature for single, long events

### Activation Control

- Manual Pushbutton
- Pre-scheduled
- Delayed
- PC controlled

# EDR-15 FieldDAQ™

## Take It Into the Field — And Leave the Laptop Behind.

## EDR-15 FieldDAQ™ SPECIFICATIONS

| | | | |
|---|---|---|---|
| **DATA ACQUISITION** | | | |
| Selectable High Speed Channels: | 15 | | |
| Number Of Channel Banks | 5 | | |
| Digitization: | 16-bit | | |
| #Low Speed CHs: | 2 | | |
| Temperature Sensor CHs | 1 | | |
| Battery Voltage CHs | 1 | | |
| #Trigger CHs (1 per channel bank) | 5 | | |
| Sample Frequency: | 1-50,000Hz | | |
| Low Speed (temperature, battery voltage) | 1 sample every 15 sec to 1 sample every 166 hours | | |
| **DATA STORAGE** | | | |
| GByte, non-volatile | 160GB (32GB per channel bank) | | |
| **DATA COMMUNICATION** | | | |
| High Speed USB 3.0 compatible | 25+ gbps | | |
| **EXCITATION AND SIGNAL CONDITIONING** | | | |
| Channel excitation specifications for voltage mode PE accelerometers, pressure sensors, strain gauges, force transducers, torque transducers and more. | Factory set from 5V to 20V<br>18V typical<br>Constant current user selectable from 0.5 mA to 15mA | | |
| Anti-alias filter 3dB cut-off frequency | User selectable 1Hz to 10,000 Hz both models<br>(8th order elliptical low pass filter) | | |
| A/D input span voltage | +/- 5V | | |
| Noise floor | 1 mV-rms at 50kHz sample rate, 5kHz low pass filter | | |
| Dynamic range | 88.5 dB | | |
| Channel calibration sensitivity ranges | 0 to 1000 mV/g | 0 to 1000 mV/psi | 0 to 1000 mV/με |
| Intra Channel Sampling Skew | Approx. 20 µsec | | |
| Inter Channel Sampling Skew (at 50 kHz sample rate) | Approx. 1 µsec | | |
| **PROGRAMMABILITY** | | | |
| Sample Rate | 1 Hz to 50 kHz/channel | | |
| Trigger source selection | individual channels, external input, scheduled | | |
| Triggering options:<br>Signal amplitude<br>Signal time-at-level by channel<br>Time interval(scheduled)<br>External trigger input<br>Inter-, intra- channel triggering | <br>0 to full scale<br>1 to 1,000,000 samples<br>1 sample every 15 sec to 1 trigger every 166 hrs<br>TTL level change<br>by channel selection | | |
| Channel Gain<br>External channel offset adjust | Programmable 1, 2, 4, 8, 16, 32, 64, 128<br>Programmable 0 to 1.5 V | | |
| Trigger latch feature | Programmable latching trigger period | | |
| Time trigger delay (forced dead time between triggers) | 0 to 10,000 samples | | |

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| | |
|---|---|
| Manual triggering | User configurable via pushbutton on instrument or virtual on PC |
| Maximum number of trigggered events | 1 ,048,567 |
| Event length: | Fixed or data dependent |
| Pre-trigger samples | 2 to 21,845 |
| Post-trigger samples | 1 to 5,000,000,000 |
| Maximum event length cutoff | 5,000,021,845 samples |
| Armed recording mode start and stop | Can be set by date / time entry or by delayed start /stop entry or by manual pushbutton start and stop function |
| **OPERATIONAL** | |
| Internal Temperature Recording | |
| Range/Resolution | 40 to +70°C +/-1 C° both models |
| Digital Clock | Month/Day/Year, Hour:Min:Sec |
| Date & Time tagged to each triggered event | |
| Resolution/accuracy | 4msec / ± 2 sec/Mo |
| Connectors | BNC-channel inputs and triggers; USB, AC Charger |
| Indicator LEDs | Status, battery charge |
| Push button: | Start/stop recorder, recorder status, mode change |
| Battery | 14.8V 45,000 mA-Hr re-chargeable lithium -ion |
| Instrument Operating Temperature | –40°C to +70°C |
| Battery Rated Discharge Temperature | –20°C to +70°C |
| Battery Charging Temperature: (battery capacity and operating time decrease at lower temperatures) | 0°C to +45°C |
| Data Memory Backup | Nonvolatile, Indefinite |
| **PHYSICAL** | |
| Size | 11” x 7” x 9” |
| Housing | Aluminum |
| Weight | 14 lb. |
| Shock Fragility | 100 g, 6 ms half-sine |
| **HARDWARE OPTIONS** | |
| Transducers: IEPE accelerometers / pressure transducers / strain gauges | Will work with industry standard IEPE types: PCB, Dytran, Kistler, etc |
| GeoSynch™ | Standalone Event GPS location correlation in DynaMax™ Software |
| Hand-held remote trigger (HRT-1) | Easily connects to trigger input port |

## Contact IST to discuss your application, specifications and availability.


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***Specifications subject to change without notice.***


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