Introducing

The

MotionMaster™

Model EDR-6DOF

Self-contained sensor/recorder
measures and records 3-axis linear
acceleration and 3-axis roll, pitch & yaw

Use IST's New MotionMaster™ to characterize 6DOF motion environments of amusement rides, airborne vehicles, watercraft, underwater vehicles, vehicular crashes, shipping environments and more!
The EDR-6DOF is a stand alone, battery operated, 6-axis measurement and recording system that incorporates the power source, digital electronics, analog electronics, and all sensors into a single, robust package. It is capable of measuring and recording six axes of linear acceleration and angular rate data over time periods of up to ten days under battery power. It is capable of withstanding harsh environments where other, less robust systems might not. With 8 MB of installed memory the MotionMaster™ is capable of recording up to nearly ninety minutes of continuous 100 Hz bandwidth data, making it ideal for measuring motion on unattended vehicles during short term tests.

- 6-channel, 6-axis acceleration sensor/recorder
- Onboard 3-axis linear accelerometers - x, y, z
- Onboard 3-axis angular rate sensors - roll, pitch, yaw
- Eight (8) MB onboard data storage
- Simultaneous 6-ch digitization to 3200 sps/ch
- Completely user programmable
- High speed RS-232 & USB communications interface to PC
- Completely self-contained, battery powered, rugged
- Comprehensive user interface software for setup, data download and time & frequency domain analysis
- Flight qualified, intrinsically safe
- Patent Pending

Use IST's New MotionMaster™ to characterize 6DOF motion environments of amusement rides, airborne vehicles, watercraft, underwater vehicles, vehicular crashes, shipping environments and more!

<table>
<thead>
<tr>
<th>Analysis Band Width</th>
<th>MB</th>
<th>Total Onboard Memory</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hz</td>
<td></td>
<td></td>
</tr>
<tr>
<td>60</td>
<td>8</td>
<td>144 min., (*)</td>
</tr>
<tr>
<td>100</td>
<td></td>
<td>87 min.</td>
</tr>
<tr>
<td>500</td>
<td></td>
<td>17 min.</td>
</tr>
<tr>
<td>1,000</td>
<td></td>
<td>8 min.</td>
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</tbody>
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(*) Approximate-Max, Assuming Nyquist Digitization Rate
**EDR-6DOF Series Recorder Specifications**

**DATA ACQUISITION**
- Selectable High Speed CHs
- Simultaneous High speed CHs
- Digitization
- Low Speed CHs
- Simultaneous Low Speed CHs
- Temperature Sensor CHs
- Humidity Sensor CHs
- Battery Voltage CHs
- Trigger CHs
- High Speed Digitization Rate
- Low Speed Digitization, Aggregate MAX, sps

**DATA STORAGE**
- MegaByte-Non-volatile SRAM

**DATA MANAGEMENT**
- Fill & Stop Memory Mode
- Overwrite Memory Mode
- Sliding Window Overwrite Mode™
- Sliding Window Overwrite with Event Type Partitioning
- Sliding Window Overwrite with Channel Set Partitioning
- Sliding Window Size
- Separate Time Windows

**DATA COMMUNICATION**
- High Speed Serial RS-232
- USB Compatible, Modem Compatible

**Model EDR-6DOF**

- 6 (6)
- 6
- 10-bit
- 8
- 8
- 2 (2)
- 2
- 2
- 185-3200
- 1 sample every 15 sec to 1 sample every 166 hours
- 16200
- 8
- x
- x
- x
- x
- Selectable 1 min to 30 days
- Selectable 1 to 100
- 9.5 to 115kbaud
EDR-6DOF Series Recorder Specifications

SENSORS
Internal Accelerometer: Piezoresistive Triaxial
Internal 3-Axis Angular Rate Sensors
Accelerometer ±Range Choices
Accelerometer Frequency Responses
2g, 5g, 10g, 100g, 200g ±
Signal Filtering: 4th Order Anti-Aliasing, Accelerometer Channels
Standard 3dB Cutoff Choices
Angular Rate Full Scale Range
Options: range/resolution
Angular Rate Anti-alias Filters/Frequency Response
User selectable at time of order
Angular Rate Sensor Frequency Response (best case)
Automatic Auto-Zero Offset Correction

PROGRAMMABILITY
High Speed Sample Rate
Trigger Selection
Trigger Timing
Amplitude Threshold
Separate Channel Thresholds
Duration (time at level) Threshold
Separate Channel Thresholds
Trigger Duration Threshold
Time Trigger Delay
(forced time delay between triggered recordings)
Time Triggered Recording
Maximum Number of Events
Event Length
Pre-trigger samples
Post-trigger samples
Maximum Event Length Cutoff
Memory Modes

OPERATIONAL
Temperature Recording
Range/Resolution
Humidity Recording
Range/Resolution
Usable Temperature Range
Digital Clock
Date & Time Tagged to Each Acceleration Event
Resolution/Accuracy
Auto ON and OFF Times

Connectors
Battery Life (Typical) Alkaline C-cell Batteries
Data Memory Backup

PHYSICAL
Size
Housing
Weight
Operating Temperature Range
Shock Fragility

STANDARD ANALYSIS
(with DM95-BASE Software package)
Windows 95, 2000, NT, XP compatible

OPTIONAL ANALYSIS SOFTWARE

HARDWARE OPTIONS
Relative Humidity Sensor
Auxiliary Battery Pack
Hand-Held Remote Trigger (HRT-1)
Remote Alarm Module (RALM-1)

Model EDR-6DOF

-2±, +5±, ±10, ±20, ±50, ±100, ±200
DC-250 Hz, DC-350 Hz
DC-400 Hz, DC-1000 Hz
DC-1500 Hz, DC-2000 Hz
60, 80, 90, 110, 140, 170, 200, 340, 420, 510, 620, 750, 930, 1120, 1915 Hz
±150 / 0.30, ±300 / 0.60, ±1200 / 2.34 deg per sec
from 40 Hz to 400 Hz
DC-400 Hz
1% fs / sec

Internal channels and/or external trigger input

1 sample every 15 sec to 1 sample every 166 hours
1683
Fixed or Data Dependent
2 to 16382
1 to 16384
16384 samples
FS, OW, SWO, SWO-ETP, CSP

Internal & external
-40 to +70°C ±3°C
Internal & external
0 to 100% RH ±2% RH
1 to 60°C

Month / Day / Year, Hour: Min: Sec
53 msec / ±3 min/Mo

DB9 for RS-232 serial or USB adapter
(4-pin microdot for external RS-232, USB, aux. power)

10+ days
12+ months

4.2” x 4.4” x 2.5”
Blue Anodized Aluminum, watertight, gasket sealed
2.6 lb
-40 to +70°C
500g or 20 x 1’s

3-Channel Acceleration and angular rate waveform graphics, histograms, temp/hum process
Resultant Acceleration and angular rate waveforms
Spreadsheet tabulation of max, min, peak, duration, RMS, crest factor, velocity change, angle, temperature, humidity, dew point, battery volt
Data editing and sorting by selected event parameters, statistical summaries
Digital filtering-low pass, high pass, bandpass
DM95-int Velocity and Displacement Waveforms
DM95-psd Power Spectral Density (PSD) Calculation and Analysis
DM95-srs Shock Response Spectrum (SRS) Calculation and Analysis
DM95-drop Packaging Drop Height-Equivalent Impact, Zero-G Free Fall,
Package Trajectory Animation, Impact Direction & Type.
DM95-deriv Jerk Waveform Calculation and Display

Internal and/or external

Portable Data Recorders For Dynamic Environments
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