



## MotionScope M1



Redlake's Metesco MotionScope® M series of high-speed CMOS cameras combine ease-of-use and value for your high-speed motion applications. The MotionScope® M1 provides a resolution of 640 x 512 at 1000 fps. Specifically optimized for design and diagnostic applications, the innovative MotionScope® M1 architecture puts these high-speed digital cameras in a class by themselves.

Compact, lightweight, and featuring Firewire connectivity, the MotionScope® M1 camera offers all the benefits of advanced imaging technology. The MotionScope® M1 features built-in image memory for storing the recorded high-speed sequence for playback, editing, or downloading to the PC's hard disk.

Flexible triggering lets you create the best pre- and post- event trigger settings enabling you to capture perfect images every time. Thanks to their intuitive and reliable Imaging Studio windows control software, the MotionScope® M1 camera is exceptionally simple to set up and operate.

The camera is interfaced to your PC via a standard Firewire (IEEE-1394a) interface. In the event of a power failure, a battery backup is included to ensure you never lose your data.

**Applications:** Diagnostics of high speed machinery, Process control, High speed packaging machinery, Biomechanical research, Animal locomotion, Material sciences

| Features                                | Benefits  |
|---|---|
| Fast frame rates to 1000 fps            | Capture high speed motion or events at VGA resolution                           |
| Supports up to 8 seconds of record time | Extended record time for long events such animal locomotion                     |
| Global Shutter to 4 $\mu$ seconds       | Freeze motion photography of fast moving objects with minimal or no motion blur |
| Compact packaging                       | For constrained space applications  |
| Internal battery                        | For standalone operation  |

### Sample Frame Rates

|          |           |
|----------|-----------|
| 62.5 fps | 640 x 512 |
| 125 fps  | 640 x 512 |
| 250 fps  | 640 x 512 |
| 500 fps  | 640 x 512 |
| 1000 fps | 640 x 512 |

### Memory

| Memory | Max. Frame | Record Time at 640x512, 1000 fps |
|--------|------------|----------------------------------|
| 325 MB | 1024       | 1 second                         |
| 650 MB | 2048       | 2 seconds                        |
| 1.3 GB | 4096       | 4 seconds                        |
| 2.6 GB | 8192       | 8 seconds                        |

## MotionScope M1 Performance Specifications

|                                |   |
|--------------------------------|---|
| <b>CMOS Imager</b>             |   |
| <b>Sensor Array</b>            | Area array with 12 $\mu\text{m}$ x 12 $\mu\text{m}$ pixels, Color or Monochrome |
| <b>Image Resolution</b>        | 640 x 512 @ 1000 fps  |
| <b>Dynamic Range</b>           | 59 dB at sensor   |
| <b>Memory and Record Rates</b> |   |
| <b>On-board Storage</b>        | 325 MB to 2.6 GB available  |
| <b>Recording Rates</b>         | Selectable, up to 1000 fps  |
| <b>Playback Rates</b>          | 7.5, 15 fps (full resolution) depending on PC                                   |
| <b>Camera Control</b>          |   |
| <b>Shutter</b>                 | Global Electronic Shutter variable down to 4 $\mu\text{s}$                      |
| <b>Trigger Frame</b>           | Variable position from start to the maximum available frame capacity            |
| <b>Trigger Mode</b>            | TTL, 5V-tolerant switch closure   |
| <b>Software</b>                |   |
| <b>Control Software</b>        | Imaging Studio; Windows 2000/XP compatible                                      |
| <b>File Formats</b>            | TIFF, JPEG, AVI, GIF, MPEG, and RAW   |
| <b>Mechanical Description</b>  |   |
| <b>Camera Dimensions</b>       | 2.6 in (67 mm) H x 2.6 in (67 mm) W x 4.9 in (125 mm) L                         |
| <b>Camera Weight</b>           | 1.87 lb (6.5 kg)  |
| <b>Camera to PC Interface</b>  | IEEE-1394a (Firewire)   |
| <b>Camera Cable Lengths</b>    | 5m (firewire); optional fiber media convertor for longer distances              |
| <b>Battery capacity</b>        | 30 min. recording and 4 hr. standby   |
| <b>Lens Compatibility</b>      | 1" C-mount  |
| <b>Lens Mount</b>              | C-mount, F-mount adapter, other adapters available                              |
| <b>Synchronization</b>         |   |
| <b>Multiple Cameras</b>        | Not supported; multi-camera synchronization requires MotionScope M3             |
| <b>Environmental</b>           |   |
| <b>Camera Power</b>            | +8 to 16 VDC @ 12W  |
| <b>Operating Temperature</b>   | -18°C to +45°C Ambient (0°F to 122°F)   |
| <b>Emissions/Safety</b>        | CE approved, FCC Class B compliant, UL listed                                   |
| <b>Input/Output</b>            |   |
| <b>I/O – Trigger I/O</b>       |   |
| <b>Strobe Output (3.3V)</b>    |   |
| <b>Power</b>                   |   |
| <b>IEEE-1394a - Firewire</b>   |   |

Note: Specifications are subject to change.



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