



S-MIZE – the rugged, ultra compact high speed camera

G-Rated for automotive on-board testing, certified for use in shock and vibration applications. A robust camera for demanding applications in research and development.

The S-MIZE is particularly suited for all applications where a compact, portable and robust camera is essential. The highly light sensitive sensor and the sophisticated image quality algorithm embedded in the camera suit the most ambitious application. The S-MIZE is designed and certified to withstand g-forces up to 100 g/10 msec/all axes and spikes up to 200 g. Offering a wide range of signals for external control or feedback on camera status during tests the S-MIZE is a genuine all-in-one camera. Fast download of your image sequence is achieved via Gigabit Ethernet. Multiple options are available such as Compact Flash Card in camera, live SDI or analog video out, External Battery Pack and IRIG-B to just name a few.

Unique features

- **Excellent image quality** – S-MIZE cameras incorporate a high-accuracy image reconstruction algorithm, which is a primary element for superb image quality, and highly rated by independent users of the S-MIZE.
- **Ultra compact – all in one** – S-MIZE is an ultra-compact all in one camera ready to fit into tight areas where other cameras simply do not. The built-in battery allows camera operation without external power cables and power supplies and insures safe back up of your valuable recorded image data.
- **High Sensitivity** – the S-MIZE is a very light sensitivity camera ideal for recording with less light and shorter shutter times to minimize motion blur of fast moving objects.
- **Extensions** – S-MIZE offers a wide variety of options at time of purchase or as a future addition, protecting your investment from technology obsolescence. Extensions such as IRIG-B timing or built in flash memory card interface are some examples.

S-MIZE – Key Specifications

Frame rate vs resolution vs recording time (partial)

| Resolution ▶ | Resolution @ fps Option 2 required | Resolution @ fps Basic camera | Resolution @ fps Basic camera | Resolution @ fps Option 2, 3 required |
|--------------|---------------------------------------|----------------------------------|----------------------------------|--|--|--|--|--|
| | 1280 x 1024 @ 500 fps | 900 x 700 @ 1000 fps | 800 x 600 @ 1250 fps | 640 x 480 @ 1925 fps | 512 x 512 @ 2110 fps | 320 x 240 @ 6110 fps | 256 x 256 @ 6680 fps | 144 x 136 @ 16'500 fps |
| Memory ▼ | Sec recording time | Sec recording time | Sec recording time | Sec recording time | Sec recording time | Sec recording time | Sec recording time | Sec recording time |
| 1.3 GB | 2.0 | 2.1 | 2.2 | 2.2 | 2.3 | 2.8 | 3.0 | 4.1 |
| 2.6 GB | 4.0 | 4.2 | 4.4 | 4.4 | 4.6 | 5.6 | 6.0 | 8.2 |
| 5.2 GB | 8.0 | 8.4 | 8.8 | 8.8 | 9.2 | 11.2 | 12.0 | 16.4 |
| 10.4 GB | 16.0 | 16.8 | 17.6 | 17.6 | 18.4 | 22.4 | 24.0 | 32.9 |

Table shows typical resolution vs. fps, Resolution is freely adjustable, fps = max fps @ resolution, fps adjustable by software in steps of 1 fps, max 100'000fps @ reduced resolution

Optical/Sensor specifications

| | |
|--------------------------|---|
| Image Sensor | 1280 x 1024 pixel with 10 Bit dynamic range, monochrome or color version Basic max. resolution of S-MIZE is 900 x 700 pixel (see Option 2) |
| Sensor Size | 14 µm pixel size / 17.8 x 14.3 mm @ 1280 x 1024 pixel |
| Light Sensitivity | Min ISO 3200 (monochrome), ISO 2400 (color) |
| Dynamic Range | – Standard 8 Bit – With Option 1: 5-8-10 Bit adjustable by user |
| HDR Mode | High Dynamic Range Mode for higher image dynamic up to 14 Bit, free adjustable by slider in control software |
| Pixel Correction | Built-in Pixel correction for highest image accuracy |
| Shutter Type | Global, independent of frame rate |
| Exposure Time | Free adjustable from 2 µsec to 1/framing rate by software |

Note: some specifications depending on Options (see "Options") Resolution is user adjustable within the limits of the camera feature/sensor

Camera and control features

| | |
|--------------------------------------|---|
| Image Memory | Standard: 1.3 GB, optional 2.6 / 5.2 / 10.4 GB |
| Nonvolatile Memory | Optional Flash card interface for up to 32 GB flash disk in camera. Camera can download image data from camera memory to flash disk w/o PC attached |
| Power | 9–16 VDC / 12–15 Watts depending on options and extensions Optional: 24–36 VDC input |
| I/O Tolerance | TTL level, all I/O are 0–24 V tolerant |
| LED Control | LED on back and front for indication of camera status |
| Reset | Reset function to reset camera status w/o affecting image memory |
| Power On/Off | Switch on/off, Remote Switch on |
| Battery 180° Version | Re-chargeable NiMH battery inside for up to 15 mins autonomous operation of camera, optional external battery for up to 2.5 hrs autonomous operation is available |
| Battery 90° Version | Re-chargeable NiMH battery inside for up to 30 mins autonomous operation of camera, optional external battery for up to 2.5 hrs autonomous operation is available |
| Trigger Delay | Programmable up to 65 sec |
| Trigger Windowing/De-bouncing | User programmable trigger window to eliminate false triggering by external devices |
| Trigger Modes, Positions | Pre-post recording, freely adjustable in steps of 1% of total camera memory |
| Timing | High precision time base, temperature compensated |
| Multi-Buffer | Split buffer for up to 32 individual sub-buffers |
| Auto-Download | Auto download to PC for 24/7 recording or automatic download to optional flash card until flash card full |
| Pre-Program of Camera | S-MIZE may be preprogrammed with a specific set of commands. Ideal when camera can no longer be accessed before test and switch on is possible only by remote switch on |
| OSD | Information on camera settings, recording features, time stamp. Event Marker may be added in image data |

Options

| | |
|------------------|---|
| Option 1 | Gain control (5-, 8- or 10-bit, low-, mid- or high-gain) allows full control of sensor gain |
| Option 2 | Extends basic resolution of 900 x 700 pixel to full sensor resolution of 1280 x 1024 pixel |
| Option 3 | Extends fps up to 16'500 fps |
| Option 4 | 3 additional event markers (total of 4) |
| Option 5 | Frame synchronization, multi camera operation on same PC |
| Option 11 | Auto Exposure |
| Option 12 | Motion Detection |

Data Interface

| | |
|-------------------------|---|
| Data Interface | Gigabit Ethernet (10/100/1000) with lockable RJ45 connector |
| I/O Interface | Solid 14 pin Lemo connector |
| Synchronization | Sync in / Sync Out for phase-locked master-slave operation with other cameras or synchronization to external frequency (Option 5) |
| Armed Out | Armed out indicates camera is working OK in Record Mode and is ready to receive trigger |
| Trigger In | Trigger input, rising, falling edge, TTL, switch closing/opening |
| Triggered Out | Indicates camera is triggered |
| Set_To_Rec | Used to set the camera from idle mode into recording |
| Remote Switch On | Switch on camera by simple 2 wire connection over a distance of up to 100 m (300 feet) |
| Event Marker | Event marker to record/mark events during image data acquisition |
| Strobe | Strobe out to synchronize external equipment to camera. Pulse width represents shutter time |

Physical specifications

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|--|--|
| Size 180° Version | 74 x 71 x 80 mm / 700 gr (1.5 lb) (connectors on the back) |
| Size 90° Version | 92 x 71 x 67 mm / 700 gr (1.5 lb) (connectors on the side) |
| Operating Temperature | -10 ... +45 °C / 14 to +113 °F |
| Storage Temperature | -40 ... +70 °C / -40 ... +158 °F |
| Shock Resistance | 100 g / 10 msec all axis, up to 200 g for spikes |
| I/O Connector (type required for cable) | LEMO Type: FGG.2B.314.CLAD82Z ODU: S22LOC-P14MFG0-8200 |
| CE | In compliance with relevant standards |
| Mounting | ¼" UNC thread, bottom / M6 mounting threads on 4 sides |

Extensions (change of camera size)

| | | S-MIZE 180° | S-MIZE 90° |
|-----------------------------|---|----------------------------------|----------------------------------|
| IRIG-B | IRIG-B 122 input for synchronization and/or time stamp | 74 x 71 x 80 mm (size unchanged) | 92 x 71 x 67 mm (size unchanged) |
| Video out | PAL or NTSC format, SDI or analog Video out on camera for live view while set-up, recording. Playback sequence on screen | 74 x 71 x 90 mm | 99 x 71 x 67 mm |
| Flash Card Interface | Flash card interface with card lock and protection cover for up to 32 GB flash card memory | 74 x 71 x 90 mm | 107 x 71 x 67 mm |
| External Battery | External battery with charge supervision in software, connects to camera via separate interface, no additional cabling required – comes with 50 cm / 2 feet cable | Size unchanged | Size unchanged |



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