The Spirit 4K Optical Path

Through an internal spatial processor, the Spirit 4K DataCine supports all required preparations for 16-bit and 24-bit raw data and full color processing. The optical path gives you the flexibility to adapt to any critical parameters to design your own system. The Spirit 4K system uses the standard 700W xenon lamp in the illumination section to provide homogeneous illumination of a storage system.

Unmatched Color Performance

At the heart of the Spirit 4K system is the proven concept of a consumer-type optical path with a precision-acquisition feedback loop to ensure consistency of image quality, even when there is resonant or residual action due to humidity, dust, or movement. Spirit DataCine systems across the world have demonstrated their robust design and can always be matched with the confidence that it will be reproduced.

The Spirit 4K DataCine system has an SGI 1220 framestore. Lens illumination provides a broad and continuous spectrum of light across the entire visible area, with emphasis in the critical short-wavelength UV and blue. The system also includes a fiber system to allow the use of standard camera filters for effects allowing colored scanning.

Effective Digital Intermediate Workflow

The Spirit 4K system brings an unmatched efficiency in creating a digital intermediate (DI) from film. The unprecedented high scanning speeds are complemented by features to support a smooth and fast working process.

The Spirit 4K platform includes a special set of scanner menus for the greatest possible flexibility. There are four slightly nonlinear control systems and restrict to three control functions required for a 3D stereoscopic application. Each of these control surfaces can be split by the control panel to allow the user to control the number of inputs and outputs.

Signal Processing

The linearity of the Spirit 4K system allows for the creation of a digital intermediate (DI) from film. The unprecedented high scanning speeds are complemented by features to support a smooth and fast working process.

The Spirit 4K DataCine includes standard and extended primary (RGB) color correction with an RGB color matching that is used to create a digital intermediate (DI) from film. The system also includes a digital intermediate (DI) from film. The unprecedented high scanning speeds are complemented by features to support a smooth and fast working process.

The optional internal spatial processor, which is also located after the internal spatial processor, allows you to scan a nonemo or crop image on its own frame. This processor also provides the spatial processor that you can reduce the 4K image into a 2K image and then scan it again. The Spirit 4K system includes standard and extended primary (RGB) color correction with an RGB color matching that is used to create a digital intermediate (DI) from film. The system also includes a digital intermediate (DI) from film. The unprecedented high scanning speeds are complemented by features to support a smooth and fast working process.

HD and SD Film Processor

For the Spirit 4K DataCine applications, in order to achieve the Spirit 4K DataCine application, it is important to have a digital intermediate (DI) from film. The system also includes a digital intermediate (DI) from film. The unprecedented high scanning speeds are complemented by features to support a smooth and fast working process.
**The Spirit 4K Optical Path**

Through an internal spatial processor, the Spirit 4K DataCine supports all required horizontal and vertical scan rates (120 4-perf) and automatically adjusts to 35 mm film. This allows you to quickly modify your input to have core. In addition, you can operate the Spirit 4K at any time with a bones system to deliver image data to a storage system.

**Unmatched Color Performance**

At the heart of the Spirit 4K is the unique concept of a spectral-twin light source with a precision active-feedback loop to ensure consistency of image output, and film movement common to radial action, de-wind, and re-wind. Spirit DataCine users across the world demand high color accuracy; this feature can be matched with the confidence that it will be reproduced.

The Spirit 4K system features a highly precise 3600-pixel sensor. Image illumination provides a true and consistent output of light across the entire area, with emphasis on the critical colors in the yellow region. The result is a consistent image across the entire area, without variations in color that are normal in traditional film scanning technologies.

As the true original Spirit DataCine system, the optical path requires no pass-through to achieve a highly uniform light source. This light source has proved highly accurate in eliminating the unwanted effects of film stocks and even small dust particles.

In digital intermediate, the norm is to use the original camera negatives to capture the best possible quality. The high-fidelity content of the sensor light source of the Spirit 4K is significant in balancing out the range of negative and intermediate stocks to achieve the most natural, most visually satisfying image quality.

**The Spirit 4K HD/SD Processor**

The Spirit 4K High Dynamic Range processor transfers the image to the output system. The HD/SD Processor supports an SDI output (59.94 Hz or 60 Hz) and includes an optional internal SDI scaler, which is optional to allow for future SDI compatibility. The processor will output an SDI signal to a user-defined video format, with an optional internal SDI scaler.

This processor also provides the precision de-processing you need to deliver live signals to your HD cameras.
The Spirit 4K Optical Path

The Spirit 4K DataCine Application

The Spirit 4K Optical Path

The Spirit 4K system includes an internal format converter optimized for the Spirit High performance film scanner and Bones system. In addition to the conversion process, the system’s software integrates additional functions, such as image rotation, horizontal and vertical effects, as well as anamorphic unsqueeze and digital output blanking.

The Spirit 4K high-performance film scanner and Bones system to provide complete real-time format functionality.

The combination of the Spirit 4K high-performance film scanner and Bones open post-production system allows for a vast range of applications in the film world, from traditional film production to digital workflow.

Digital Color Correction

TheSpirit 4K system includes standard and extended primary (RGB) color correction with an accuracy of ±0.05% frame height. This process also provides the precision decreasing on the color output.

2k Images from 4k Scans

The Spirit 4K system provides high-resolution images with an accuracy of ±0.05% frame height. This process also provides the precision decreasing on the color output.

HD and SD Film Processor

For quick outputting of film materials to video, the Spirit 4K high-performance film scanner and Bones open post-production system provides for a vast range of applications in the film world, from traditional film production to digital workflow.

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**Specifications (cont.)**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Display formats</td>
<td>1920x1080/24 and 23.98 Hz</td>
</tr>
<tr>
<td>625/50, 525/59.94, 2:1 interlace (optional)</td>
<td></td>
</tr>
<tr>
<td>Contour Correction</td>
<td>Corner for 35 mm 3-perf/4-perf and more than 3 dB down at 400 lines</td>
</tr>
<tr>
<td>Transfer characteristics</td>
<td>SMPTE 268M-1994</td>
</tr>
<tr>
<td>Power configuration</td>
<td>115V/208V for three-phase power supply, 240V/400V for single-phase power supply</td>
</tr>
<tr>
<td>Power configuration (Europe)</td>
<td>230V/50/60 for single-phase power supply</td>
</tr>
<tr>
<td>Power configuration (Australia)</td>
<td>240V for single-phase power supply</td>
</tr>
<tr>
<td>Transfer characteristics (Asia)</td>
<td>240V for single-phase power supply</td>
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<tr>
<td>Power configuration (Japan)</td>
<td>100/50/60 for single-phase power supply</td>
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<tr>
<td>Frequency response</td>
<td>-3/0/+4/+8 dBm switchable to +16 dBm</td>
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<tr>
<td>S/N ratio, weighted</td>
<td>≥500 MB/s (interface only, excluding processor option)</td>
</tr>
<tr>
<td>Frequency response (Europe)</td>
<td>≥1000 MB/s (interface only, excluding processor option)</td>
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<tr>
<td>Frequency response (Asia)</td>
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</tr>
<tr>
<td>Frequency response (South America)</td>
<td>≥1000 MB/s (interface only, excluding processor option)</td>
</tr>
<tr>
<td>Frequency response (Rest of the World)</td>
<td>≥1000 MB/s (interface only, excluding processor option)</td>
</tr>
</tbody>
</table>

**Support Services & Training**

- Product demonstrations and training courses for all Grass Valley products, including Spirit 4K
- Factory, On-Site, and Web Training Classes
- Training experts can build and assist you with customized solutions.
- Critical Spares Kits for Most Products
- Spirit 4K DataCine Support
- Page 36 of the data sheet contains more detailed information on support services.
**Spirit 4K**

**High-Performance Film Scanner and Dataflow—Now With Optical Solution**

Grass Valley’s products are built on a foundation of superior technology designed for film acquisition, production, and post production. Grass Valley’s digital technology combines complete solutions for digital intermediate, digital cinema, and video mastering applications.

With more than 250 customers shipped worldwide, the Spirit 4K Family represents Grass Valley’s leadership in film and video mastering technology and high-end film scanning applications for a decade. A new Spirit 4K product line offers a quantum leap in performance, with a maximum native resolution of 4k and selectable 2k scanning available in real-time.

**The Spirit 4K System** is available in two basic variants: a high-performance scanner connected to a Grass Valley® Bones native 2k scanning available in real-time. The Spirit 4K system includes a film scanner that can be engaged in its full-featured form that includes intermediate and high-definition (HD) video and an RGBA® film scanner that can be used in applications that rely on color and can be enhanced with a Bones system, offering faster-than-real-time 4k/2k scanning.

**Spirit 4K Film Scanner/Bones Combination**

Digital intermediate production—the future reality picture wherever it works! It is here and is changing the way film production is done with a revolutionary digital film that can be down-sampled to the appropriate resolution—enabling the highest resolution and the highest precision scanning.

While its resolution is widely accepted for optical digital production, there are situations where a higher resolution is required. In such cases, the 4k or 2k digital film scanner is the choice of the future in real-time 4k scanning. The high-resolution 4k scanning is real-time where it is processed and can be down-sampled to the appropriate resolution—enabling the highest resolution and the highest precision scanning.

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- **High-resolution, multi-format film scanners with selectable precision, stability, and image quality**
- **Part of next-generation Scenic Film, with Grass Valley Bones native 2k scanning, part of the Grass Valley® Bones native 2k scanning**
- **Support native 2k (cinema) and 2k (digital) scanning in real-time, and one-pass 4k scanning in real-time**
- **Film data is scanned in real-time, and then processed by the application, which can be enhanced with a Bones system, offering faster-than-real-time 4k/2k scanning**
- **Spirit 4K scanner offers unparalleled image detail, capturing that unrivalled image detail, capturing that unrivalled image detail, capturing that unrivalled image detail**

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**Ordering Information**

<table>
<thead>
<tr>
<th>Model</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>S4K 4K</td>
<td>Spirit 4K scanner with Bones native 4k scanning</td>
</tr>
<tr>
<td>S4K 2K</td>
<td>Spirit 4K scanner with Bones native 2k scanning</td>
</tr>
</tbody>
</table>

**Specifications (cont.)**

- **Brainiac**
- **Chip**
- **CPU**
- **Display**
- **Frame Buffer**
- **Image Buffer**
- **Input/Output**
- **Memory**
- **Performance**
- **Power**
- **Storage**

**Support Services & Training**

The Grass Valley Support Services & Training team offers complete service solutions that enhance your return on Grass Valley products and global systems solutions. Advanced training and customer support, by technical support, keeps your equipment and staff performing at optimum productivity and quality.

For more information, please visit our worldwide Support Services & Training team at www.thomsongrassvalley.com/support. The Grass Valley Support Services & Training team delivers complete service solutions that enhance your return on Grass Valley products and global systems solutions. Advanced training and customer support, by technical support, keeps your equipment and staff performing at optimum productivity and quality.