ECAM-C30
Color CMOS Camera, 3 Megapixel

The ECAM Imaging System minimizes spacecraft overhead and flexibly delivers the features, performance, and reliability required to service a variety of applications, including:

- In-flight engineering diagnostics
- Deployment/actuator monitoring
- Space situational awareness
- Science observations
- Public outreach

Leveraging the experience of more than a dozen science instruments delivered to deep space that have returned more than 700,000 images, the ECAM imaging system delivers cost-effective, short lead-time, high-performance, and reliable space imaging as a modular off-the-shelf solution.
The C30 utilizes a CMOS image sensor with integral RGB Bayer Pattern color filter array. The sensor outputs 10-bit pixels that are square-root companded to 8-bits before being transmitted to the DVR on a 100 Mbit/s serial link. Within the DVR, video is pre-processed and compressed in real-time, then buffered to memory for playback at a later time. Preprocessing typically includes Bayer Pattern interpolation and direct conversion to the YCbCr color space using a 5 x 5 filter kernel. The video is also reformatted as needed for input to either a JPEG (lossy) or Huffman First Difference (lossless) compressor.

The C30 is highly configurable. The exposure and gain may be adjusted to support widely varying scene conditions and the DVR supports automatic gain and exposure control. The C30 also supports windowing, allowing smaller format images and video to be acquired from anywhere within the scene. To acquire larger portions of the scene at lower resolution, binning and summing may be enabled. Video frame rate is fully adjustable, with the maximum supported frame rate varying with frame size.

Three standard lens options are available for the ECAM series visible-band cameras. ECAM optics are designed for the rigors of space flight, utilizing proven design and manufacturing methodologies with decades of heritage across more than a dozen missions. Our standard lens options have no moving parts, are athermalized to provide stable performance over a wide range of temperatures, and are built to withstand the hazards of launch and long-term operation in orbit.

The C30 includes mounting flanges that may be configured to mount the camera in one of four orientations.