

Leica RC30 Aerial Film Camera



Aerial photography captured with Leica RC30

Aerial Camera System

Leica
Geosystems

Leica RC30

User Benefits of the Leica RC30 Aerial Camera System

High Productivity

- Perfectly integrated system

Low Costs for Image Acquisition

- Superb image quality
- High-performance lens cones
- Forward motion compensation (FMC)
- Gyro-stabilized camera mount

No Expensive Repetition of Flight Mission

- Reliable components
- No separate costs for post-flight editing
- Data annotation on each photograph

Low Training Costs

- Easy handling



Performance and Reliability

For decades, aerial camera systems from Leica and Wild have been the number one choice of customers all over the world. In some cases, topographic maps of entire countries have been plotted from small scale photographs taken by cameras in the Wild/Leica RC range.

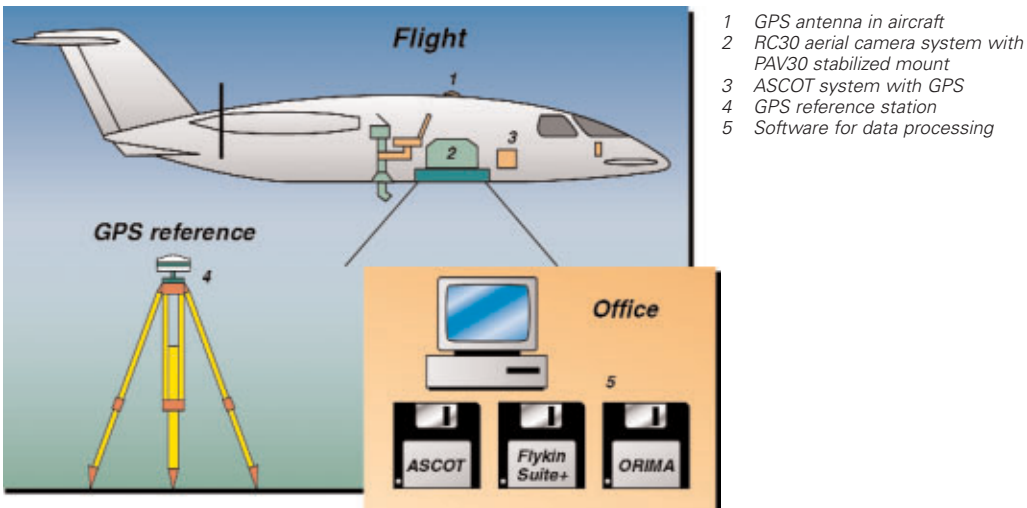
Aerial survey companies also rely on Leica Geosystems' aerial camera equipment for large scale photographs for cadastral and engineering purposes. Faithful color rendition as well as excellent false-color differentiation are of crucial importance for successful work for many users in the environmental protection and forestry areas.



Each photographic survey flight mission involves high costs, and incomplete surveys can lead to even more expensive repeat flights. The Leica RC30 is an aerial camera system of renowned quality and long-term reliability that meets all requirements. An aerial camera is not an isolated system, however. When a Leica RC30 is equipped with the PAV30 gyro-stabilized mount, the Leica ASCOT Aerial Survey Control Tool, GPS and a smooth data flow into aerotriangulation, considerable time and money can be saved during flight missions as well as in data analysis. This can be achieved only if the aerial camera is part of a total system, which is accomplished perfectly with the RC30.

Leica RC30 — **The Aerial Camera System That Meets Customers' Requirements Perfectly**

Components of the Leica Geosystems Solution



Perfect Integration

For economical work, and easy and complete data transfer, an outstanding aerial camera system is of utmost importance.

The Leica Geosystems Solution

Together with ASCOT, the Leica RC30 and PAV30 form a perfectly efficient and complete system. Through the use of ASCOT, Leica Geosystems' GPS-based survey flight management system, survey flights become simpler, less expensive and less problematic. Control of the entire system, as well as camera release, data annotation and data logging, is performed automatically.



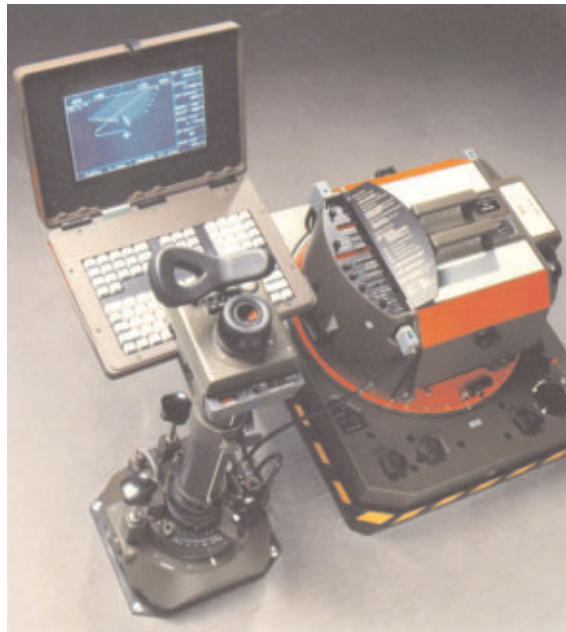
Automatic Drift Control

The PAV30 gyro-stabilized camera mount of the RC30 camera system can be interfaced via ASCOT and the ARINC 429 BUS to the aircraft's navigation system. In this case drift correction can be executed automatically. By means of the PosOp option, the PAV30 can also receive inertial measurement unit (IMU) data in real-time from an Applanix Position and Orientation System, which enables the PAV30 to achieve results even closer to perfect verticality in addition to automatic drift control.

Up-to-Date and of the Highest Quality

The RC30 offers everything a modern, up-to-date camera should provide:

- High-quality lenses offering the highest resolution
- Outstanding long-term stability
- Compensation for forward image motion (FMC)
- Gyro-stabilized mount
- Automatic exposure control
- Communication with ASCOT and other systems
- Data annotation on each photograph
- Modular design, micro-processor controlled



Modular

Compact: All the necessary components, for example film transport and forward motion compensation, are part of the central drive unit of the RC30. Interchangeable modules, such as lens cones and film cassettes, are therefore extremely compact. The construction principle of the RC30 ensures easy handling, avoids excessive weight, and reduces costs.

Two Lens Cone Types: Leica Geosystems offers customers the choice of two lens cones with different focal lengths, giving the opportunity to execute various types of survey flights efficiently.

Configuration Alternatives: According to the type of survey flight, the appropriate aerial camera system can be easily configured. The numerous alternatives range from a one-man-crew system to a fully integrated survey flight system including ASCOT and a dual camera configuration.

Easy Handling

Micro-Processor Controlled: The camera is entirely micro-processor controlled. During the flight, the reliable electronic parts and all the camera functions are continuously controlled by the software. A self-test unit allows a function check on the ground, ensuring early detection of possible malfunctions.

Functional Operation: All the operating and display elements of the RC30 are logically integrated. The standard settings of all the necessary elements are done on the ground, before the flight. The essential operating and monitoring functions necessary during the survey flight are integrated into the navigation sight.

Low-Weight Components: The individual components are easy to handle, and owing to the small number of cable connections, the RC30 can be installed into an aircraft within a reasonable time. Lens cones and filters can be changed easily.

Practical Film Cassettes: Each cassette can accommodate the take-up roll as well as the film roll. This results in tremendous savings in weight as well as space requirements in the aircraft whenever several rolls of film are needed on the same flight mission. The cassettes are not expensive, as the FMC module is part of the drive unit of the RC30.

High Cost-Effectiveness: Compatibility as well as upgrade possibilities protect and maintain the value of your investment. Older components can also be used with the RC30. Even RC10 cassettes and RC10A/RC20 cameras can be upgraded to RC30. In a dual camera configuration it is possible to combine the RC30 with older RC camera models.

Reliability

Investment Stability: Leica Geosystems has been manufacturing aerial camera systems since 1925. The cameras have been equipped with digital electronics since 1980. This unsurpassed experience is applied to all new products. Aerial cameras are long-term investments. Customers appreciate that Leica Geosystems aerial cameras are highly reliable, exhibit long-term stability and are easy to maintain and service. This is also expressed by the high stability of the value of the investment.

Tests of New Developments: All Leica Geosystems' newly developed equipment is test-flown. This practical testing is combined with the experience of camera users worldwide in the development process.

Service and Calibration: Leica Geosystems operates a worldwide network of service facilities for aerial camera systems. Thus minimum downtime can be ensured. For easy planning of preventative maintenance, the drive unit contains an exposure counter. In addition, each lens cone carries a counter to record operating hours.

Leica Geosystems' Calibration: Leica Geosystems' electronic vertical goniometer calibrates camera lenses in the visible and infrared range. All measurements are automatic and opto-electronic, and therefore unaffected by subjective assessment. Leica Geosystems' factory calibration tests are so accurate that official acceptance tests become routine.

Consultancy and Training

Camera Installation: At Leica Geosystems you find the professionals with the skills to solve your problems: specialists for aerial photography, experienced photogrammetrists, engineers, service technicians and maintenance experts. Leica Geosystems' skilled personnel advise customers on application techniques, camera installation, interfaces, accessories, up-grades, maintenance, etc.

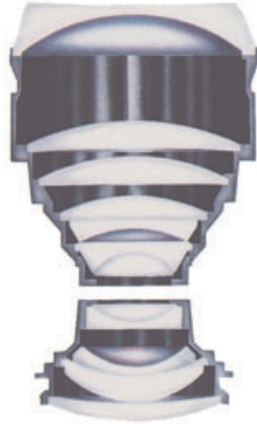
Training Courses: Regular training courses and workshops given at various Leica Geosystems locations help users with the operation and maintenance of Leica Geosystems' aerial camera systems. These courses also give the opportunity to exchange practical experience with other users. In addition, Leica Geosystems organizes specific customer training courses at the customer's site. Furthermore, Leica Geosystems' User Group Meetings often include camera workshops, providing customers with worthwhile opportunities to network with each other as well as Leica Geosystems' personnel.

Image Quality – Admired Worldwide

Wide angle lens cone



Normal angle lens cone



Specialists from all over the world admire the outstanding quality of photographs taken by the Leica RC30 camera. This high image quality can only be achieved by the best possible combination of all the factors involved.

Lens Cones

Best Performance at f/4: The Leica Geosystems lenses of the S-generation set the very highest standard in aerial photography. These lens cones have a resolution that is unprecedented, showing a wealth of detail even in objects of low contrast. Typically a lens cone does not have maximum optical performance at maximum aperture, but Leica Geosystems' optical designers have overcome this optical limit, resulting in better lens performance at aperture f/4 than at f/5.6.

Customer Benefits

- High image quality renders more detail in every photo, minimizing flying time since flights can be executed at smaller scales
- Optimized image detail, especially in shadow areas, allows for faster, more precise setting of the floating mark, thus saving time in mapping and offering the best image for digital scanning and orthorectification
- Brilliant resolution, even in photography taken under slightly marginal light conditions with aperture set at f/4, results in a longer daily flying time

Performance and Equipment

- Large aperture f/4
- Robust, central rotary shutter for infinitely variable exposure times, from 1/100s to 1/1000s
- Higher image resolution, even in the corners of photographs
- Optimum color correction for visible and near infrared range
- Eight sharply imaged fiducial marks
- Excellent long-term reliability

FMC — Forward Motion Compensation

Due to the effectiveness of the forward motion compensation (FMC), photographs taken with the RC30 are extremely sharp. Because FMC is built into the drive unit of the RC30, this feature does not have to be purchased with every lens cone or film cassette.

Gyro-Stabilized Camera Mount

The PAV30 automatically corrects for angular motion of the aircraft (pitch, roll and drift). The gyro-stabilized camera mount supplements the FMC in the drive unit in the quest for better image quality, even in turbulent flying conditions. Furthermore, as verticality is maintained automatically, there is less stress on the camera operator.

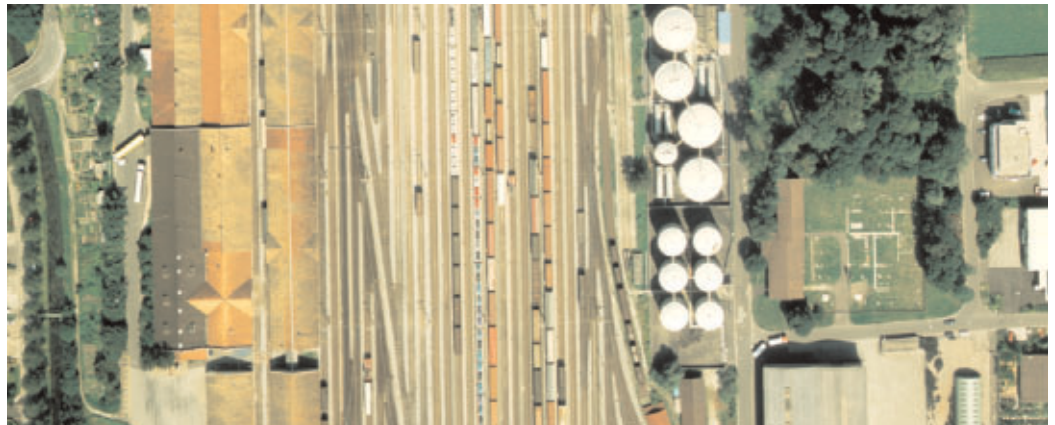
Automatic Exposure Control

Perfectly Exposed Photographs: The Leica PEM-F automatic exposure meter was specially developed and optimized for aerial photography. It is an integral part of the RC30 and provides correctly exposed photographs of every terrain type, at various flying altitudes and with every type of film.

Automatic Operation: Operation is fully automatic and simple. On special occasions it is possible for the camera operator to set exposure corrections manually, or to override the automatic control.

Customer Benefits

- No repetition of survey flights due to incorrectly exposed photographs
- Stable high photographic quality of the photographs of a project, even if taken on different days
- Automatic exposure control relieves the camera operator of strenuous adjustment tasks



Filters for All Situations

For better image quality, filters may be applied:

- Masking unwanted spectral ranges
- Absorbing contrast-reducing sky light
- Optimizing light distribution in the image plane
- Correcting color balance of film emulsion

Optimized Range: Leica Geosystems' range includes all the essential types of filters for photography with black and white, color and false color films. Sandwich filters allow the use of gelatin filters for extremely fine color corrections. For false color films special infrared attenuation filters are available, providing maximum color differentiation.

Camera Ports

Aircraft with pressurized cabins require camera ports, which must be taken into account as part of the optical system. Leica Geosystems can recommend specialist suppliers of these components. Each customized port or optical window is documented with a calibration certificate.

GIS & Mapping Division

Data Interface for External Communication

Data Annotation

Integrated Interface: EDI, the External Data Interface, is a communications link between the RC30 aerial camera and ASCOT, the user's own hardware/software or a navigation system. EDI is located in the drive unit of the RC30, so that a single EDI is sufficient regardless of the number of lens cones used.

200 Freely Definable Characters: The freely selectable data is displayed in two lines in the top and bottom margins of the photograph, each line comprising 100 alpha-numeric characters. An LED array produces a high-contrast, easily-readable annotation for any type of film. EDI saves time by eliminating tedious post-flight annotation.

External Camera Monitoring: Information regarding the status of the camera, error codes, etc. is available through the EDI. This makes it possible to integrate the camera perfectly into an external monitoring system.



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