

# *RC30 Aerial Film Camera*



*Aerial Camera System*

# RC30

## User Benefits of the Leica RC30 Aerial Camera System

### High Productivity

- Perfectly integrated system

### Low Costs for Data Collecting

- Higher image quality
- New high performance lense cones
- Forward motion compensation (FMC)
- Gyro-stabilized camera mount

### No Expensive Flight Mission Repetitions

- 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, the topographic maps of an entire country have been plotted from small scale photographs taken by cameras from 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.

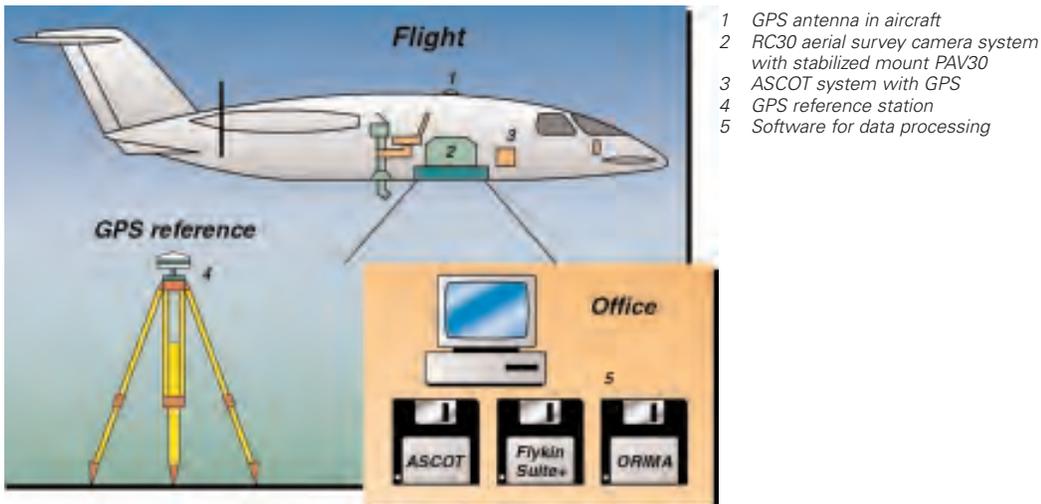


Each photographic survey flight mission involves high costs, and incomplete surveys can lead to even more expensive reflights. The Leica RC30 is an aerial camera system of renowned quality and long-term reliability that meets all the requirements. However, an aerial camera is no longer an isolated system. With the gyro-stabilized mount, with GPS and combined with aerotriangulation, a considerable amount of time and money can be saved during flight missions as well as in data analysis. This advantage, however, can be achieved only if the aerial camera is part of a total system. This is perfectly accomplished with the RC30.

## **RC30 —**

### **The Aerial Camera System That Meets Customers' Requirements Perfectly**

#### **Components of the Leica Geosystems Solution**



#### **Perfect Integration**

For economic work, not only is an outstanding aerial camera system of utmost importance, but also an easy, complete data transfer.

#### **The Leica Geosystems Solution**

The RC30 and PAV30, together with ASCOT form a perfect, efficient, complete system. Owing to ASCOT, the 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 RC30 can be interfaced to the flight navigation system. In this case data annotation and drift correction can be executed automatically.

#### **Up-to-Date and of the Highest Quality**

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

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

## **Modular**

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### **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 the customer 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 the fully integrated survey flight system including ASCOT and a dual camera configuration.

## **Easy Handling**

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### **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 an 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 on the drive are done on the ground, before the flight. The essential operating and monitoring functions necessary during the survey flight are integrated in the navigation sight.



### **Low-Weight Components**

The individual components are easy to handle and, owing to the few cable connections, the RC30 can be installed into an airplane 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 every RC30.

## ***High cost-effectiveness***

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Compatibility as well as the possibility of upgrading 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***

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### **Investment Stability**

Leica Geosystems has been manufacturing aerial camera systems since 1925. Since 1980, the cameras have been equipped with digital electronics. This long-standing experience and know-how are applied to all our new products. Aerial cameras are long-term investments. Customers appreciate that Leica Geosystems aerial cameras are highly reliable, show long-term stability and are easy to maintain and service. This is also expressed by the high stability in the value of the investment.

### **Tested New Developments**

All of Leica Geosystems' newly developed equipment is test-flown. Together with this experience gained in practice the experience of camera users worldwide is also taken into account.

### **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 preventive maintenance, the drive unit contains an exposure counter. In addition, each lens cone carries a counter for operating hours.

### **Leica Geosystems' Calibration**

Leica Geosystems' electronic vertical goniometer calibrates camera lenses in the visible and infrared range. All the 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***

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### **Camera Installation**

At Leica Geosystems you find the professionals with whom to discuss your problems with and the techniques to solve them: specialists for aerial photography, experienced photogrammetrists, engineers, as well as service and maintenance specialists. Leica Geosystems' skilled personnel advise customers on questions of application techniques, camera installation, interfaces, accessories, up-grades, maintenance, etc.

### **Training Courses**

Regular user 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 operators. In addition, Leica Geosystems organizes specific customer training courses at the customer's site.

## 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 Geosystems RC30 camera. This high image quality can only be achieved by the best possible combination of all the factors responsible for image quality.

### New Lens Cones

#### Best Performances at f/4

The Leica Geosystems lenses of the S-generation set a new 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 our optical designers have overcome this typical optical limit resulting in better lens performance at aperture f/4 than at f/5.6.

#### Customer Benefits

- High image quality renders more detail per photo, minimizing flying time as 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.
- 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

- Largest 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 pictures
- Optimum colour correction for visible and near infrared range
- Eight sharply imaged fiducial marks
- Excellent long-term stability

## ***FMC — Forward Motion Compensation***

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Due to the compensation of the forward image motion (FMC), photographs taken with the RC30 are sharper. Because FMC is built-in centrally in 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***

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The PAV30 automatically corrects for angular motion of the aircraft (pitch, roll and drift). In addition to FMC, the stabilized camera mount provide considerably better image quality even in turbulent flying conditions. Furthermore, as verticality is maintained automatically, there is less stress on the camera operator.

## ***Automatic Exposure Meter***

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### **Perfectly Exposed Photographs**

The Leica Geosystems automatic exposure meter PEM-F 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 pictures
- Stable high photographic quality of the pictures of a project, even if the pictures are taken on subsequent days
- Automatic exposure control relieves the camera operator from strenuous adjustment tasks.

## ***Filters for All Cases***

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For better image quality filters may be applied:

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

### **Optimized Range**

In Leica Geosystems' range of filters you find all the essential types 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.

# Data Interface for External Communication

## 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 by a calibration certificate.

## Data Annotation

### Integrated Interface

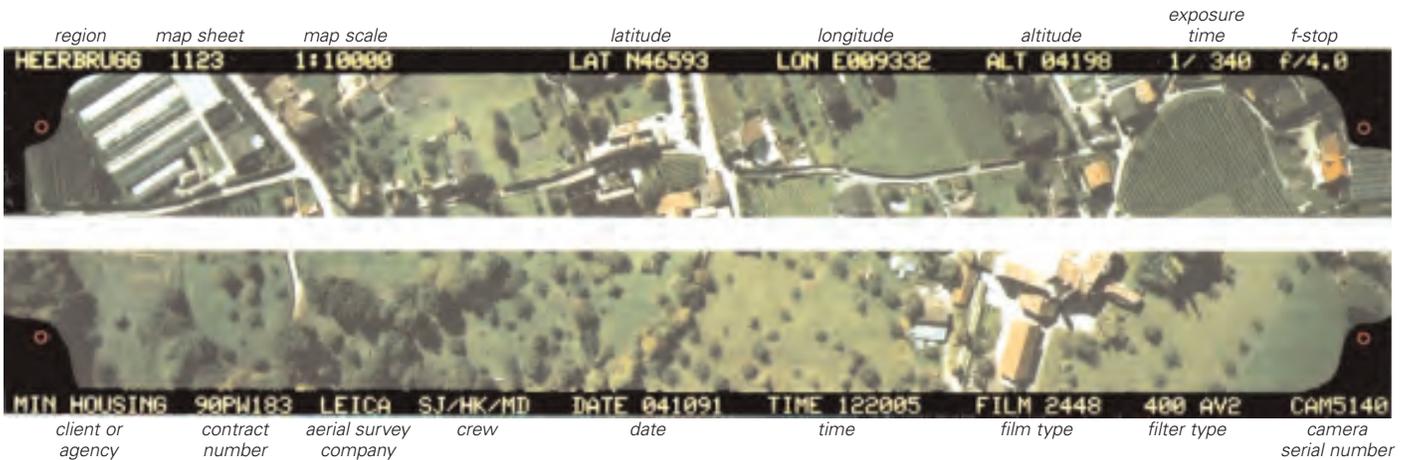
EDI, the External Data Interface, is a communications link between the RC30 aerial camera and ASCOT, user provided hardware/software, GPS or a navigation system. EDI is located in the drive unit of the RC30. Therefore, one single EDI is sufficient regardless of the number of lens cones used.

### 200 Freely Definable Characters

The freely selectable data are 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.



# GIS & Mapping Division



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