CONTROP PRECISION TECHNOLOGIES LTD.

Automatic Scanning & Observation Systems

CONTROP has been developing and manufacturing Scanning & Observation Surveillance Camera Systems since the late 1990s. These systems provide an excellent and cost effective solution for any defense or Homeland Security (HLS) missions requiring proven scanning and observation capabilities.

CONTROP’s Scanning & Observation Systems provide observation and panoramic scanning using a single system for operational short/medium/long ranges from 1 km to 20 km. They include a unique technology of high resolution long range night vision surveillance cameras and a unique concept of operation (CONOPS) using continuous automatic panoramic scanning with an automatic moving target indicator (detector), making these intruder detection systems ideal for reliable perimeter security, infrastructure protection, border protection, air base security and more. These systems are proven for boat detection for coastal surveillance, port and harbor protection and more.

CONTROP’s scanning and observation systems are aircraft detection proven and are suitable for air defense applications (when the Radar does not provide a reliable solution).

CONTROP's variety of Scanning & Observation Systems include:

- Stabilized systems for long range observation and for installation on tall mast or poles.
- Unstabilized systems for short ranges and low cost solutions.
- A variety of products, which differ by size, weight and types of EO / IR sensors, as well as by applications.

OPTIONS:

- Daylight color camera.
- B/W spotter with very long focal length.
- Cooled or un-cooled thermal imaging cameras with continuous optical zoom lens.
- Eye-safe Laser Range Finder (LRF).
- Laser pointer.
Short Range Observation:

- DANIS Day and Night Integrated System (DANIS) for up to 1 km.
- DANIS-100 Day and Night Integrated System (DANIS) for up to 2 km.
- MEOS-U modular short range EO/IR observation system with uncooled thermal imaging camera

Short Range Automatic Intruder Detection:

- 3D-GUARD 3-dimensional video motion detection system

Medium Range Scanning & Observation:

- MEOS-250 modular medium range EO/IR observation system
- MEOS-450 modular medium range EO/IR observation system
- SPIDER – a Stabilized Panoramic Automatic Intruder Detection and Recognition System
- TORNADO air defense and airport protection system

Long Range Scanning & Observation:

- SPEED-LR long range stabilized panoramic automatic intruder detection and recognition system
- SPEED-V stabilized panoramic automatic intruder detection and recognition system for vehicles
- MEOS-720/1200 modular long range EO/IR observation system
MEOS-450 Modular Medium Range EO/IR Observation System

The MEOS-450 is an advanced 24/7 passive and modular wide area and real time Electro-Optical observation system with panoramic scan and automatic moving object detection capability (Optional).

MAIN FEATURES

- Two optional cooled Thermal Imaging (TI) Cameras:
  - High resolution, low F# cooled Thermal Imaging (TI) with continuous optical zoom lens.
  - High resolution cooled Thermal Imaging (TI) camera with continuous optical zoom lens.
- Two optional day cameras – long range or super long range.
- Eye safe laser rangefinder, 10Km or 20Km (Optional).
- Robust, high accuracy P&T with automatic leveling.
- P&T Gyro-stabilization (Optional).
- Panoramic scan and automatic intruder detection (Optional).
- Advanced control unit – COTS.
- Ruggedized control unit (Optional).
- Proprietary C2 Software Application.
- Integrated maps/aerial photos and DTM.
- RS422 or IP interface.
- MEOS family commonality.
- Field Proven in 24/7 outdoors operation.
- Remote operation via copper cable (up to 100m), fiber optics or RF link.
- Designed to meet MIL-810.
- Standard IDF border/coastal/base protection surveillance system.

APPLICATIONS

- Coastal surveillance.
- Border surveillance.
- Smuggling.
- Illegal immigration.
- Perimeter surveillance.
- Water reservoirs.
- Armed forces facilities.
- Offshore oil/gas rigs security.
- Military bases security.
- Force protection.
Airborne EO / IR Payloads

CONTROP has been developing and manufacturing EO / IR payloads since 1993. CONTROP’s wide range of payloads provide an excellent and cost effective solution for any mission.

CONTROP provides proven Small, Medium and Long Range EO / IR camera payloads for air, land and maritime applications.

CONTROP's EO / IR Payloads have the following characteristics:

- Unique EO / IR camera with continuous optical zoom lens.
- Excellent image performance with advanced proprietary Image Processing and Enhancement features.
- Highly accurate stabilization with 3, 4 or 5 Gimbals.
- Gyro-stabilized in two or three axis, using 3, 4 or 5 gimbals.
- High quality image with exceptionally high resolution (in the narrow field-of-view), which is independent of the platform's maneuvers and vibrations. Image quality is kept while looking both horizontally and vertically.
- Weights from as low as 0.300 kg for MICRO-STAMP Miniature Stabilized Payloads, up to 46 kg for a large Multi Sensor Payload.
- Different types of EO / IR sensors which are utilized in each payload, including:
  - Daylight Color 1CCD or 3CCD cameras
  - B/W Spotter with very long focal length
  - Cooled or un-cooled thermal imaging cameras with continuous optical zoom lens
  - Eye-Safe Laser Range Finder (LRF)
  - Laser pointer

CONTROP’s EO/IR payloads were designed for applications requiring aerial photography including surveillance, reconnaissance, Search & Rescue (SAR), intelligence and observation and many various missions. These payloads are unique in their ratio of very high performance payload with a very low weight, which significantly reduces the requirements and constraints from the platform or vehicle on which it is mounted. They are proven for remote control platforms such as UAVs, UGVs and USVs and also for local operation on helicopters, fixed wing aircraft and more.

Suitable for installation, mounting and usage on a wide variety of platforms, they include:

- Air vehicles such as SUAVs, aerostats / balloons, UAVs, VTOLs / helicopters,
- fixed-wing aircraft , etc.
- Land vehicles such as UGVs, poles, masts etc.
- Maritime vessels such as USVs, ships, boats, hovercraft etc.
DSP-HD High Performance HD Surveillance Payload System

The DSP-HD, widely recognized by a multitude of worldwide customers, has varying applications and is the "HD Payload of Choice" for day and night airborne surveillance applications. The DSP-HD provides the best high performance/value ratio and a High Definition (HD) system combining multi mission capabilities in a single low weight HD payload.

The DSP-HD has superior capabilities and very long acquisition ranges, making it ideal for a wide variety of applications and platforms. It can be installed on UAVs, helicopters, fixed-wing aircraft, aerostats, surveillance vehicles, high masts and more.

MAIN FEATURES

- Superior observation capabilities for very long acquisition ranges.
- Sensors:
  - Thermal Imaging (TI) with 720 mm focal length (Continuous Zoom x36).
  - Full HD zoom camera.
  - Full HD daylight spotter channel.
  - Eye safe Laser Range Finder (LRF) (optional).
  - Laser pointer (optional).
- High performance for light weight:
  - 29 kg for turret.
  - 35.4 cm diameter.
- Four gimbal system fully gyro-stabilized in azimuth and in elevation for the entire field of regard including at the NADIR / ZENITH point.
- Interface external devices such as moving map, C4I system, RADAR and navigation system, using all standard communication channels.
- Automatic target tracker.
- Continuous Optical Zoom.
- Image enhancement (built-in) and local AGC capabilities.
- Customized graphics superimposed on video.
- Best value for high performance system.

APPLICATIONS

- Border patrol.
- Coast guard and sea patrol.
- Police Multi Mission.
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- Search and Rescue (SAR).
- Anti-terrorist surveillance.
- Anti-smuggling surveillance.
- Oil spill detection.
- Oil pipeline patrol.

**STAMP Family:**

CONTROP's short range stabilized EO / IR payloads have the following characteristics:

- Are effective for short range missions 1-3 km.
- Provide an excellent low cost, low weight, high performance solution for operational ranges of 1000 meters, where gyro-stabilization is required for a quality image.
- Include one Line Replacement Unit (LRU) and are ideal for quick integration and mounting.
- Are suitable for remote control platforms such as UAVs, VTOLs and UGVs and also for local operation such as airplanes, helicopters and ground vehicles.
- Are two axis gyro-stabilized miniature, lightweight payloads, using three gimbals and are designed for installation on miniature and small platforms.
- Include unique technologies for the mechanical gyro-stabilization and navigation systems.
- Include a wide variety of configurations with Un-Cooled Thermal Imaging Cameras with different optics, to match any night vision requirements or Day TV cameras for any full light requirements.
- CONTROP's short range STAMP Payloads were designed for very low weight requirements, incorporating lightweight technologies and utilizing a lightweight dome cover and window, in order to minimize the weight, for day or night use onboard tactical "over-the hill" miniature UAVs. The STAMP Systems are available with a color CCD Camera with optical zoom or with un-cooled thermal camera with or without optical zoom.
- CONTROP's short range VIEW payloads utilize the STAMP technologies but with a ruggedized outer housing, in order to provide maximum protection to the system when installed on larger and rougher platforms such as helicopters, ground vehicles and maritime vessels etc.
- The miniature size of the STAMP and the VIEW systems makes them a state-of-the-art and cost effective solution with high performance in minimal weight.
The MICRO-STAMP is a gyro-stabilized micro electro-optical infrared dual sensor payload with an uncooled infrared thermal imaging camera and a CMOS color camera, mounted on a three gimbal system to ensure superior observation performance. The order of the gimbals from inside to out (in nose mount orientation) is: roll, pitch, roll, whereby the external roll gimbal follows the internal roll gimbal. The internal roll gimbal and the pitch gimbal always remain orthogonal. Since the gyros are mounted on the LOS, this configuration enables excellent stabilization at all pitch angles and the gyros signal used for roll stabilization is not decreased due to the pitch angle.

MAIN FEATURES

- Three gimbals gyro-stabilized system
- Miniature, single LRU gyro-stabilized electro-optical system, containing an uncooled IR detector and a day TV high resolution CMOS camera
- Very low weight
- Inertial stabilization
- INS on line of sight (using external GPS data)
- Dual FOV IR camera
- X4.8 continuous zoom day TV camera
- Future Option: Video Tracker

APPLICATIONS

Stabilized miniature payloads for surveillance and reconnaissance on a variety of Air Vehicles:

- Small UAVs
- VTOLs
- UAVs
- Small manned aircraft
- Aerostats
- Tactical observation balloons
M-STAMP - Multi Sensor Stabilized Miniature Payload
(Uncooled Infrared IR x4 Continuous Optical Zoom and CCD x10 Continuous Optical Zoom)

The M-STAMP payload is a miniature, lightweight, electro-optical, gyro-stabilized, airborne sensor which is designed to be carried by a miniature UAV, for tactical "Over-the-Hill" reconnaissance in daylight and / or at night. The STAMP payloads, provide small UAVs with the image quality of large UAV payloads all in one miniature camera system.

The STAMP payloads can operate in the following modes:

- Observations mode (joystick rate mode).
- Inertial target tracking mode.
- Hold coordinate mode (optional).
- Point to coordinate mode (optional).
- Scan / mosaic mode (optional).

MAIN FEATURES

- Stabilized miniature payloads for surveillance and reconnaissance on a variety of small UAVs and small aircraft
- Gyro stabilized image independent of platform maneuvers and vibrations.
- Three (3) Gimbal System.
- Very light weight and low power consumption.
- High performance image resolution and quality.
- Variety of day and night sensors.
- Continuous Optical Zoom.
- Graphics superimposed on video.
- LOS data on video signal.
- Mounting flexibility:
  - Horizontal- Nose Mount.
  - Vertical up or down; Belly Mount.
- One LRU, one plug.
- Low cost.
- Compatible for high landing G Shock.
- Proven in battle.
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OPTIONS
- Slip Ring.
- Integrated INS/GPS on line of sight for point-to-coordinate capability.
- Payload Operating Unit (POU) also available, for evaluation and maintenance purposes.

VARIETY OF CONFIGURATIONS
- D-STAMP (CCD x10 continuous optical zoom)
- D-STAMP-HD (CMOS 1/3" x9 / x20 Continuous Optical Zoom)
- U-STAMP – uncooled infrared IR single FOV Camera
- U-STAMP-Z – Uncooled Infrared IR x4 Continuous Optical Zoom Camera
- U-STAMP-DF – Uncooled Infrared IR Dual Field-of-View Camera
- M-STAMP Multi Sensor (Uncooled Infrared IR x4 Continuous Optical Zoom and CCD x10 Continuous Optical Zoom)

APPLICATIONS
Stabilized miniature payloads for surveillance and reconnaissance on a variety of air vehicles:
- Small UAVs
- VTOLs
- UAVs
- Small manned aircraft
- Aerostats
- Tactical observation balloons

D-STAMP-HD (CMOS 1/3" x9 / x20 Continuous Optical Zoom)

The D-STAMP payloads are miniature, lightweight, electro-optical, stabilized, airborne sensors which are designed to be carried by a miniature UAV, for tactical "Over-the-Hill" reconnaissance in daylight.

The STAMP payloads, provide small UAVs with the image quality of large UAV payloads all in one miniature camera system.

The STAMP payloads can operate in the following modes:
- Observations mode (joystick rate mode).
- Inertial target tracking mode.
- Hold coordinate mode (optional).
- Point to coordinate mode (optional).
- Scan / mosaic mode (optional).
MAIN FEATURES

- Stabilized miniature daylight payloads for surveillance and reconnaissance on a variety of small UAVs and small aircraft.
- Gyro-stabilized image independent of platform maneuvers and vibrations.
- Three Gimbal System.
- Very light weight and low power consumption.
- High performance image resolution and quality.
- Variety of day and HD sensors.
- Continuous Optical Zoom.
- Graphics superimposed on video.
- LOS data on video signal.

Mounting flexibility:

- Horizontal- nose mount.
- Vertical up or down; belly mount.
- One LRU, one plug.
- Low cost.
- Compatible for high landing G shock.
- Proven in battle.

OPTIONS

- Slip Ring.
- Integrated INS/GPS on Line of Sight for Point to coordinate capability.
- Payload Operating Unit (POU) also available, for evaluation and maintenance purposes.

VARIETY OF CONFIGURATIONS

- D-STAMP (CCD x10 continuous optical zoom)
- d-stamp-HD (Cmos 1/3" x9 / x20 continuous optical zoom)
- U-STAMP – uncooled IR single FOV camera
- U-STAMP-Z – uncooled IR x4 continuous optical zoom camera
- U-STAMP-DF – uncooled IR dual field-of-view camera
- M-STAMP multi sensor (uncooled IR x4 continuous optical zoom and CCD x10 continuous optical zoom)

APPLICATIONS

Stabilized miniature payloads for surveillance and reconnaissance on a variety of Air Vehicles:

- Small UAVs
- VTOLs
- UAVs
- Small manned aircraft
- Aerostats
- Tactical observation balloons