

UMAT R-350

ESG HELICOPTER DRONE

Unmanned mission equipment carrier

The UMAT R-350 unmanned mission equipment carrier is a flying experimental carrier of the company ESG Elektroniksystem- und Logistik-GmbH (ESG) and the Federal Office of Bundeswehr Equipment, Information Technology and In-Service Support (BAAINBw).

ESG is a manufacturer-independent system integrator and aeronautical engineering company and as such a national technology and innovation partner, especially for the defense and public security sector.

The UMAT R-350 is based on an R-350 helicopter drone from UMS Skeldar AG, modified by ESG. From 2014 to 2021, the UMAT R-350 was used to carry out research projects and analyses for the German Armed Forces and internal ESG projects. Novel sensors, avionics and procedures for handling unmanned aerial vehicles were tested, for example

2015: Automated mission execution

2017: Automatic landing zone reconnaissance and reconnaissance for manned helicopters

2018: First cooperative flight (Manned-Unmanned-Teaming / MUM-T) with Bundeswehr aircraft

2021 GeoFencing (automated assurance that a defined flight area is not left under any circumstances, e.g. in the event of radio interruption or an operating error)

The special feature of UMAT is that the integration of the devices to be tested required little effort. The use of various safety nets integrated into the drone in conjunction with a comprehensive flight operations organization for unmanned systems also allows the flight testing of systems and devices at a very early stage of development and at low cost. In addition, the safety requirements are lower than for testing with manned aircraft, where the crew must be protected and a correspondingly large number of time-consuming verifications are required.

The UMAT R-350 is an unmanned helicopter with a CFRP airframe. It has an integrated GPS navigation system with an inertial measurement unit, as well as two compartments for payloads and mounting points for external loads. The drone is powered by a gas turbine. The avionics and communications equipment is housed in the avionics compartment behind the main rotor. The avionics compartment also contains the components for power distribution, the flight controller and the flight abort system.

DESCRIPTION: R-350 /// MANUFACTURER BASE SYSTEM: UMS SKELDAR AG /// CREW: UNMANNED
/// DRIVE: GAS TURBINE, 25 KW /// ROTOR DIMENSION: 3.50M /// LENGTH: 3.20M ///
HEIGHT: 1.30M /// RUMP WIDTH: 0.99M /// EMPTY WEIGHT: 78 KG
/// MAX. FLIGHT WEIGHT: 150 KG /// LOAD: 44 KG /// FIRST FLIGHT: 2015