

专家:S-100 是成熟旋转翼无人机 16 年前已有原型

Expert Statement: The S-100 is a mature UAV helicopter

[提要] 现在大型固定翼无人机的队伍不断壮大，而小型垂直起降无人机市场则刚刚起步。西贝尔公司的“坎姆考普特”（CAMCOPTER）S-100 无人直升机已经通过了欧洲航空安全局的适航性认证，为该无人机系统的成功应用迈出了一大步。

Summary: Compared to Fixed-Wings UAV sales, the market for VTOL UAVs is only at its outset. Schiebel CAMCOPTER S-100 UAS has the permit to fly from EASA, which is helpful for the success its promotion.



“坎姆考普特”S-100 无人直升机容易进行地面运输。

The CAMCOPTER S-100 UAS is very easy to transport on the ground

现在大型固定翼无人机的队伍不断壮大，而小型垂直起降无人机市场则刚刚起步。尽管许多制造商都将其注意力投向了小型垂直起降无人机这个领域，可是军方用户和民用部门对于采用此项技术的动作都相当迟缓，因此小型垂直起降无人机系统还有待进一步开发，以充分利用其潜在好处，包括利用它在陆地环境和海洋环境进行空中侦察监视和情报收集。

Compared to Fixed-Wing UAV sales, the market for VTOL UAVs is only at its outset. Although many producers have started to focus on the small VTOL UAV industry, military and civil users are really slow in purchasing. Therefore it would need more market development to make the customer understand the system and fully use the advanced UAV technologies, including surveillance and information collection both on land and at sea.

西贝尔公司（Schiebel）的一位发言人对《无人机》杂志的人士说，无人直升机的制造者受到了挫折，不能以其所能够提供的技术为那些提出强烈要求的部门服务。不过，随着无人直升机为越来越多的用户所接受，提供的资金会越来越多，无人直升机的广泛使用指日可待。

西贝尔公司的“坎姆考普特”(Camcopter) S-100 无人直升机已经通过了欧洲航空安全局的适航性认证,为该无人机的成功应用迈出了一大步。“坎姆考普特” S-100 无人直升机是最为成熟的旋转翼无人机之一,其开发过程花了 5 年多的时间,16 年以前就有了它的早期原型。20 世纪 90 年代早期,有人提出要求,希望提供能够探雷的机载系统,并且能够用作稳定的摄影平台进行空中照像和摄影,于是无人直升机就开始萌芽了。

The Schiebel CAMCOPTER S-100 UAS was granted a permit to fly from EASA, which is helpful for the success of its promotion. The CAMCOPTER S-100, which took five years of R&D, is one of the most mature UAV helicopters. Its first original design was made 16 years ago. In the early 1990s, there was a need for mine detection from an aerial vehicle system which could take pictures and make videos from the air. As a consequence, the UAV system development started.

S-100 无人直升机系统包括 1 架小型直升机和 1 个地面控制站,小型直升机具有 10 个小时的续航时间,高的飞行速度,准确的机动能力,能够配装总重达 50 千克的各种有效载荷。系统设计时考虑到尽量减少操作人员的训练需求,不需要发射起飞和回收装备,可以通过一个简单的点击式用户图形接口来编程,进行自主的任务飞行而无需操作人员干预。同时,在其飞行过程中,可以重新编程完成互动式任务或者对任务变化做出反应,非常灵活。

The S-100 UAS, with 1 UAV and 1 Control Station (CS) and capable of 10 hours flight endurance and high-speed flight, can carry 50 kg of payload. During the design phase of the system, a reduction of operation training requirements was also considered. The UAV can take off and land automatically and there is no need for additional takeoff and landing equipment. During the flight, each task can be changed easily.

空中侦察

Target Acquisition and Reconnaissance

S-100 无人直升机的各种可供选择的有效载荷是模块化的,使得用户能够加以配置以完成多种多样的任务。执行任务的时候,实时地将图像传送到地面控制站。通常,S-100 无人直升机装备最新式的光电和红外传感器,也可以选择加装聚光灯、扬声器、绳网空投容器甚至合成孔径雷达。As a modular system, the S-100 UAS offers the ultimate in flexibility in order to meet the needs of a wide variety of missions. As a standard, it flies with state-of-the-art Electro Optical / Infra-Red (EO/IR) sensors and there are other options, such as spotlights, a loudspeaker, rope-/net-dropping containers and/or Synthetic Aperture Radar (SAR).

1 月份,S-100 无人直升机系统在奥地利维也纳新城(Wiener Neustadt)西贝尔公司工厂附近的试验场安装了 L-3 通信公司的 Wescam MX-10 光电/红外装置,完成了首次飞行。这次主要试验 MX-10 光电/红外装置的先进的能力,并对周围地区进行细致的观察。MX-10 光电/红外装置通过数据链实施控制,其采集的图像成功的实时传送到了地面控制站。S-100 无人直升机系统加装了这种稳定的高精度传感器更加适用,能够用来完成更为复杂的任务。

In January, the S-100 used an L-3 Wescam Mx-10 EO/IR sensor payload in flight tests around the factory in Wiener Neustadt to test the developed features of the Mx-10. The captured pictures have been transferred to the CS in real time through the data link.

已经有大约 130 架 S-100 无人直升机系统销往了世界各地,其销售额超过了 1 亿欧元(合 1.36 亿美元)。最近证实,S-100 无人直升机系统符合 2010 年 11 月在首尔召开的第五次 G20 政府首脑会议提出的安全规定。公司的发言人解释说,今天不管是在军事领域还是在民用领域都需要最高的安全性,要求系统在进行直接信息传输时能够应对各种挑战和危险。S-100 无人直升机系

统能够提供有力的监视，昼夜不停地传送实时信息。它不需要准备场地，不需要发射起飞和回收设备，可以在恶劣的气候条件下昼夜工作，其在陆地和海上的超视距能力达到 200 千米。

About 130 S-100 UAS have been sold all over the world, the sales revenue amounts to more than 100 million EUR (about 136 million USD). Recently, it has been proven that the S-100 UAS complies with the G20 security requirements. Schiebel speakers said that whether for military use or civil use, highest security is most important. While receiving data, the UAS is required to face different challenges and dangers. The S-100 can do effective monitoring by day and night. It does not need a specially prepared area, additional takeoff and landing equipment and can fly during very bad weather. The line of sight distance can reach up to 200 km on land and at sea. S-100 无人直升机系统在马来西亚和阿拉伯联合酋长国现在已经投入使用，并且已经完成了法国军备部和西班牙军方的试验。最近，S-100 无人直升机系统与波音公司合作为美国陆军特种作战司令部进行了与无人驾驶地面车辆相结合的战场心理战演示。演示的时候，S-100 无人直升机装备了能够在 2 千米的距离对人群演说的美国科技公司（American Technology）扬声器和以色列飞机工业公司的 POP 300 光电/红外摄影机装置，约翰迪尔公司（John Deere）的 R-Gator 无人地面车也装备了以“三叉戟”数据链扩音的扬声器，用来验证多种无人平台相结合的潜力。西贝尔公司的发言人说，心理战任务演示在美国北卡罗来纳州布雷格堡的模拟城市训练机构进行，目的在于让市民知道恐怖份子嫌犯的时候，减少不安和混乱，防止伤亡。S-100 无人直升机用来观测有关地区，提供实时空中情报，对公众演说和空投信息传单。

The S-100 UAS has been used in Malaysia and Abu Dhabi and has completed testing with the French and Spanish military. Lately, the S-100 UAS, in cooperation with Boeing, flew a demonstration for the U.S. Army Special Operations Command (USASOC) at Ft. Bragg, North Carolina, integrating the CAMCOPTER S-100 and ground unmanned systems for psychological operation (PSYOP) missions. During the demo, a USASOC and Boeing-led team, including also the John Deere Company, Trident, Inc. and American Technology Corporation, assembled a group of unmanned platforms and capabilities to perform a PSYOP demonstration. The psychological operation mission, simulating in-theatre conditions, was set at a mock-up city training facility at Ft. Bragg and aimed at minimizing civilian unrest as well as preventing civilian casualties while apprehending a suspected terrorist cell. The S-100 was utilized to survey the area and provide real-time aerial intelligence, as well as to address the public and drop information leaflets.

无人直升机的海上应用

Performance at Sea

像 S-100 无人直升机系统那样的小型无人直升机系统之所以能够成功使用，关键在于能够进入对于载人飞机和徒步巡逻队来说太具危险性的地区。无人直升机平台最有应用前景的领域之一是海上环境，萨伯公司的 Skeldar 无人直升机瞄准的就是这种海上应用市场。萨伯公司负责无人直升机营销的主管说，他们看到海上应用领域的巨大潜力，特别是用在小型船只、近海巡逻艇和海军舰船上，作为海军的载人直升机的补充手段。无人直升机在准军事部门也有巨大应用潜力，例如用于海上边界监视。另外，在民用部门，可以用于近海输气线路检查。

The key reason why UAVs, such as the S-100, can be successfully used is their ability to fly into areas that are dangerous for manned helicopters and armies.