

## SCD SHOWCASES WORLD'S TOP IR DETECTORS

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SemiConductor Devices (SCD) develops, manufactures and sells a full spectrum of cooled, uncooled infrared detectors and laser diodes. The company's advanced concepts and cutting-edge technologies have positioned it as one of the world's leading sources of IR detectors. The close relationship between SCD and well-established systems houses around the world ensures that SCD's detectors are produced in accordance with the latest defence requirements. SCD offers a complete range of "off-the-shelf" and customised detectors and laser diodes in various configurations – which are typically applied in IR seekers, thermal imagers, smart munitions, night vision systems, machine vision systems, laser rangefinders and laser designators. SCD's detectors are designed for the entire IR spectrum – Near-InfraRed (NIR), Short Wave InfraRed (SWIR), Mead Wave InfraRed (MWIR), and Long Wave InfraRed (LWIR).

SCD constantly invests in R&D for new and innovative technologies, together with operational excellence in production and manufacturing to the highest level and quality. SCD's advanced and diverse IR sensors meet the highest defense challenges and requirements of the Indian market. SCD is a corner stone in products development enabling its strategic Indian customers to respond to its defense requirements. Among these products are:

- The unique, smallest in size in its category - the "**Sparrow**". State of the art

MWIR, Video core with Linear cooler and excellent performance.

- **Pelican-D LW**, based on T2SL advanced Technology, battle field proven detector.
- The family of SWIR Detectors, **Cardinal 640**, InGaAs, 15 µm pitch, VGA format for Long Range Surveillance applications, both land and marine boarder control. The **Cardinal 1280** Detector, with proximity electronics or with video engine (to the customer's choice).

All of these were developed with special attention for the Indian EO/IR requirements and local defense needs.

➤ **Mini Blackbird 1280** is a low SWaP, HD MWIR detector that enables exceptionally high fidelity imaging for varied applications installed on systems worldwide, for airborne, ground and naval applications. This excellent performance detector is based on SCD's 1280x1024 10 µm FPA with the mature XBn HOT (High Operating Temperature) technology, Mini Blackbird enables high



performance for varied applications enabling cost-effective, high MTBF and low maintenance requirements.

SCD's HOT detectors were designed to meet variety of applications that require 24/7 operation, such as border surveillance, critical infrastructure security, and more. In addition, the HOT technology is an enabler for applications, which require very low SWaP-C (Size, Weight Power and Cost) performance with demand for long operational hours on batteries such as for man-portable handheld IR systems, tactical surveillance payloads for small UAVs, and more.

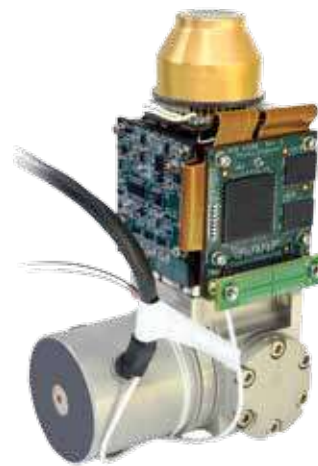
➤ **Sparrow** is the state of the art, best in its category Low SWaP-C, VGA MWIR video core which provides significant advantages in many parameters: size,



performance, and long life with high MTBF, delivering high quality images for a wide range of tactical applications. Based on SCD's 640x512 10 µm FPA with mature XBn HOT (High Operating Temperature) technology, the Sparrow solution operates at 150K, enables extremely high quality images, best in class SWaP, and low cost. This video core enables implementation of

new operational requirements for a variety of applications that would otherwise have to rely on larger, heavier and much more expensive sensors that consume considerably more power. Such applications include handheld thermal imagers for man-portable, tactical UAV mini payloads, armored vehicle RWS sights, sniper thermal weapon sights, perimeter security sensors, and more.

➤ The **PELICAN-D LW** is a cooled IR detector with targeted applications such as airborne targeting systems, gunner and commander sights, designed for variety of armored vehicles. This unique detector enables the Detect, Recognition and Identify (DRI) of NATO targets at very long ranges, during day & night. The Type II Super Lattice (T2SL) sensing technology, which has been adopted by leading



world customers in the world, enables continuous reliability, high quality deployment at

excellent, efficient production capabilities. Based on the world proved legacy Pelican-D MW mechanical and electrical interface, the Pelican-D LW enables quick and easy system integration. The detector unique features include fast cool down time, short time to image, high frame rate (360HZ at full window), cameralink interface, and a bidirectional scanner.

➤ The **Cardinal 1280 HD** is SCD's high resolution, high sensitivity SWIR InGaAs



10µm pixel detector. It enables EO/IR systems to utilize the SWIR wavelength for low light imaging and long-range surveillance in severe weather conditions (smoke, dust, fog, rain). The detector integrates SCD's patented ALPD capability that allows reliable day and night detection of asynchronous laser spots. The FPA consists of an all-digital ROIC and state-of-the-art planar InGaAs P-I-N diode array. The company's SWIR solutions enable target identification and tracking at both short and long ranges, operating in the most challenging environmental conditions.

## SKELDAR ENHANCES FORCE CAPABILITIES

The Skeldar V- 200 RPAS (remotely piloted aircraft system) is a medium-range VTOL UAV that can hover for hours while providing real-time information to a remote pilot station or to a remote video terminal. Skeldar's compact layout and future-proof design mean that is equally at home on land or at sea, operating from austere locations in any terrain or from the decks of the smallest naval vessels. Compatible with future certification requirements for operations in civil airspace, Skeldar is fully autonomous, controlled by high-level commands such as "Point-and-Fly" and "Point-and-See". Skeldar enhances force capabilities by offering full, real-time situational awareness with a variety of payload/sensor options. The platform combines short deployment and turnaround time with mobility and a modular design allowing fast and efficient preparation, transportation and delivery of the system.

UMS Skeldar is a joint venture between Saab AB,

which has been the main supplier for aircraft and defence systems to the Swedish armed forces and other countries for more than 80 years and the UMS Aero Group AG, a specialist Swiss company with a strategy to invest in and develop medium sized high-tech products.

The Skeldar V-200 RPAS has been chosen by the European Maritime Safety Agency (EMSA) and the NATO navies of Canada and Germany for their respective programmes to provide a maritime remote surveillance capability. Skeldar is the first VTOL RPAS to enter regular service with any NATO navy and it is the only proven VTOL that can fly on JET-A1, JP5 or JP8 heavy fuel (the same fuel as large manned helicopters) making it interoperable with all helicopter-operating ships.

The V-200 is a best-in-class rotary winged medium-range tactical RPAS for day and night surveillance. Launched from historically difficult locations such as the deck of a ship, a travelling convoy or other confined

areas, it provides real-time intelligence and surveillance as a force multiplier for land, civil security and maritime applications. Launch and recovery requires the minimum of personnel and preparation time.

A choice of multiple payloads increases Skeldar's high effectiveness. It can be equipped with high-definition electro optical and infra-red (EO/IR) sensors, ViDAR wide area land surveillance, AESA SAR radar, AIS and a range of other sensors and mission packages to give users the edge in any environment for wide area surveillance. The Skeldar is characterised by its robustness and high availability ILS characteristics. To simplify maintenance operations and reduce costs, for example, the equipment compartments are easily accessible via panels that can be quickly opened and closed.

The agile flight envelope of Skeldar air vehicles provides key characteristics for successful operations and missions, especially in urban areas and difficult terrain. Launch and recovery from

small areas, keeping pace on the battlefield, as well as find, hold and maintain optimal aspect to area and point of interest, are all easily performed thanks to the rotary wing design.



Integration of the UCS into C4I, combat management system (CMS) and sensor source intelligence cell (SSIC) enables faster and more accurate tasking of the Skeldar system, and also increases the situational awareness for the UAV operators to a level where individual initiatives can be taken in line with the

commander's intentions.

Developed with a low lifecycle cost in mind, the modular design enables system customisation and functional development, with maintenance carried out at

unit level. Compartments can be easily accessed for service, maintenance and payload reconfiguration. The Skeldar V-200 RPAS is a highly capable system that can be operated by just two to four people, owing to the ease of use and the low logistical footprint, making it a powerful asset in any mission.