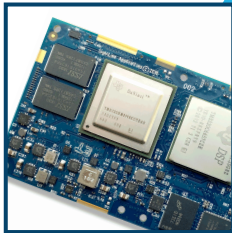
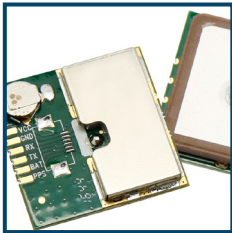
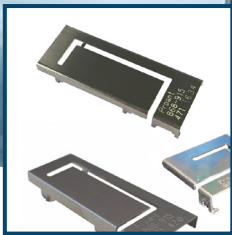


Unmanned Aerial Vehicles

Components and technical solutions



consult. design. integrate.



Finding the right technology for a UAV application in a complex market

Unmanned Aerial Vehicles or UAVs, refer to pilotless aircraft and drones either remotely controlled by an operator, or autonomously by an onboard computer.

With the UAV market anticipated to grow up to 10% CAGR by 2024 in applications for civil and commercial purposes, such as remote sensing, oil, gas and mineral exploration, crop monitoring and military applications. With the defence industry still investing more into expanding their capabilities across gathering intelligence, surveillance and target recognition as they serve as a lower-cost alternative to manned aircraft.



The requirements of these types of applications mean that the technologies within them need to be increasingly smarter, bringing more of a complex challenge in choosing the right components for such demanding applications.

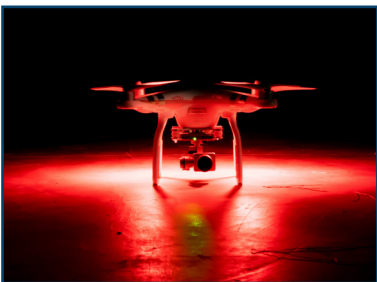
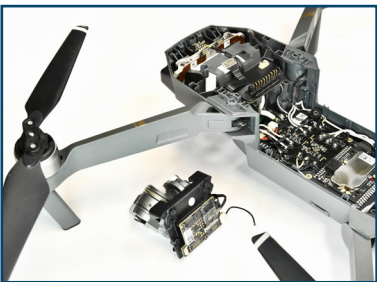
Acal BFi offers a unique portfolio of market-leading products and solutions, ideal for the specific needs of UAV applications such as components that offer low power consumption, are lightweight with small form factors, yet still giving the high-quality, powerful accuracy and reliability required.



Specialist components for UAVs

This brochure features recommended technologies and solutions offered through Acal BFi and our specialist partners that are ideal for demanding UAV's applications offering compact, robust and high-performance solutions.

As a complete solutions provider, we work with you to help identify the best solution for your requirements, using our partnerships with market-leading suppliers and access to the latest technologies. We also have in-house competence centres where we have the capabilities to assist with manufacture, prototyping and custom solutions, should your application be complex or challenging. Supported throughout by our dedicated experts at every stage from design to production to meet your timescales and requirements.



UAVs are generally split across three categories:

- Small UAV (group 1 UAVs) which have a maximum gross take-off weight (MGTW) of 0 - 20 kg.
- Medium UAV (group 2 UAVs) which have an MGTW of 21 - 55 kg.
- UAVs classified under groups 3, 4, and 5 are known as large UAVs. These UAVs have an MGTW of more than 55 kg.



Infrared imaging

- Longwave (LWIR) cameras
- Medium (MWIR) cameras
- Shortwave (SWIR) cameras

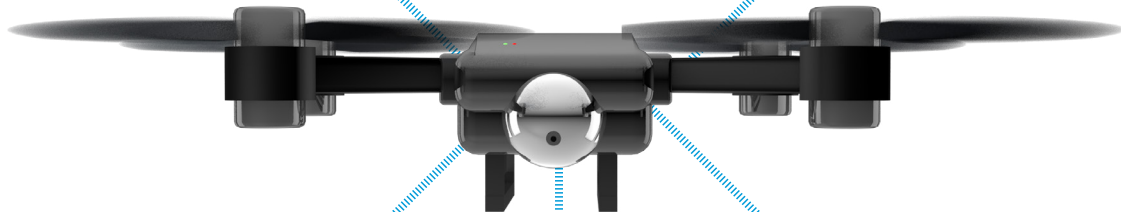
Pages 4 - 5



Visible imaging / Video analytics

- Block and high-definition visible (VIS) cameras
- Video analytics and interface boards

Page 6



Power supplies / Signal transmission

- Power supplies
- Slip rings

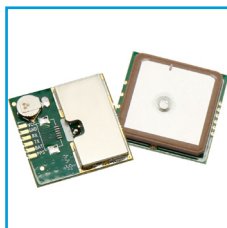
Page 7



Sensing / Positioning

- Accelerometers and Gyroscopes
- LIDAR, laser altimeter and anti-collision
- Low SWaP laser rangefinder modules

Pages 8 - 9



Connectivity solutions

- Cellular for low power UAV applications
- LoRaWAN
- Front End Modules (FEMs)
- Bluetooth and wireless modules
- GPS and GNSS modules
- Antennas

Pages 10 - 14

Longwave infrared (LWIR) camera cores

We offer a range of industry-leading, high-performance LWIR cameras (7-12 microns) providing incredibly accurate images for UAV operators because of the minimal atmospheric absorption gained from long-wave infrared imagery and the advanced image processing software available.

These specialist products are small-sized, have enhanced sensitivity and are simple to integrate, so they are ideal for UAV applications such as surveillance, agriculture and electrical-building inspection, or indoor applications such as monitoring pipes, subways and sewers.

Our IR specialists offer personalised and responsive support to customers at every stage of a project, providing samples and technical support. We also offer an exclusive range of specialist lenses which can be integrated and configured by our custom services centre in Germany.



FLIR - TAU 2 / BOSON



- Resolution: 336 x 256 and 640 x 512 pixels
- Pixel pitch: 17/12 μm
- Spectral range: 7.5 – 13.5 μm
- Temperature measurement option
- Size (L x W x H): Varies by configuration, as small as 21 x 21 x 11 mm
- Weight: Varies by configuration, as light as 7.5 g
- Compatible with: Sightline video processing boards

FLIR - LEPTON 3 & 3.5



- Resolution: 160 x 120 pixels
- Pixel pitch: 12 μm
- Spectral range: 8 – 14 μm
- Temperature measurement options
- Size (L x W x H): 10.50 x 12.70 x 7.14 mm
- Weight: 0.9 g

ICC – camera with zoom lenses

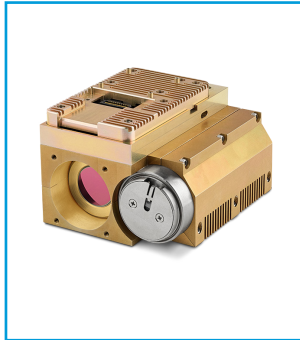


- Resolution: 640 x 512 pixels
- Pixel pitch: 12 μm
- 15-75 mm f/1.2 high aperture zoom lens
- 60Hz max framerate
- 29.9° - 5.8° HFOV capability (5X zoom)
- Compatible with: Sightline video processing boards

Midwave infrared (MWIR) camera cores

Our range of mid-wavelength cameras (2-5 microns) deliver reliable, accurate thermal imagery over a wide operating temperature range. These rugged, compact and configurable units are ideal for long-distance, complex security and surveillance.

We can help you tailor your controls and settings for each unique application. Including helping you to synchronise and trigger the camera from external events and devices. Demo/sample products are available to trial and test when you are designing a new UAV or if you want to change camera.



FLIR – Neutrino SX12

- Resolution: 1,280 x 1,024 pixels
- Pixel pitch: 12 μm
- Spectral range: 3.4 - 5 μm
- Size (LxWxH): 12 x 7.1 x 11.6 cm
- Weight: 1,970 g

FLIR – Neutrino LC

- Resolution: 640 x 512 pixels
- Pixel pitch: 15 μm
- Spectral range: 3.4 - 4.9 μm
- Operating temperature: -40° to +71°C
- Low SWaP (size weight and power)
- Size (L x W x H): 7.4 x 4.6 x 6.1 cm
- Weight: <380 g
- Power consumption: with <8w cool down and <4W steady state at 23°C
- Can be supplied with a Continuous Zoom Lens, 19-290 mm, F/5.5

Shortwave infrared (SWIR) cameras

All our specialist short-wavelength infrared cameras (0.9-1.7 microns) deliver high-resolution images. These cameras offer similar shadow contrast and detail to the visible light spectrum, but with the additional detail and visibility provided by thermal imaging. Providing you with high-quality images and clear visibility without being affected by environmental factors.

This range of cameras are ideal for active imaging and applications requiring precise details, for example, identifying subjects through fog or smoke. We work with market-leading suppliers to offer custom lens mounts and casing options to integrate the latest advanced SWIR cameras seamlessly into your design.



FLIR – Tau SWIR

- Pixel pitch: 15 μm
- Spectral range: 0.9 – 1.7 μm
- Resolution: 640 x 512 pixels
- Size (L x W x H): 38 x 38 x 36 mm
- Weight: <81 g
- Compatible with: SightLine, TAMRON

Block and high-definition visible (VIS) cameras

We offer a range of unique VIS camera modules specifically designed to provide the compactness, low weight, vibration limitation and high optical performance essential for UAVs. We offer cameras with optical vibration compensation, assuring high-quality image stabilisation when images are captured in a vibrating environment.



TAMRON - MP1110

- Resolution: 2MP, full HD
- Optical zoom: 10x
- Low SWaP (size weight and power)
- Size (LxWxH): 31.9 x 41.5 x 58.4 mm
- Weight: < 77 g
- Power consumption: 3 W
- Compatible with: Sightline video processing boards

To help you find the right VIS camera for your application, we provide personalised support including advice with product selection, offering block and high-definition cameras available to try and test and providing technical support with technology integration.

Video processing and interface boards

To gain increasingly accurate images from smaller and lighter cameras, the processing and analytics capabilities are very important to optimise processing video images, such as detection, tracking and stabilising, then encoding the images coming from your UAV.

Our local engineers are available to help tailor your specification and product, helping you to get fast technical support, no matter the size of your production run when you are integrating a board into your design.



Sightline - 3000

- Size: 88 x 50 x 6.25 mm
- Power consumption: 10W max
- Weight: 39 g
- Frame size and video rate out: 1080p @30 fps + SD @ 30 fps, 2 x 720p @ 30 fps
- Compatible with: FLIR, TAMRON, SONY and Analog/HDMI/HD-SDI/CameraLink



Sightline - 4000

- Low SWaP
- Size: 50 x 38 mm
- Weight: 26.5 g
- Frame size and video-rate out: 1080p @30 fps with full SW, 4K @30 fps with video encoding
- Dual Video-Channels Processing
- Compatible with: FLIR, TAMRON, SONY and Analog/HDMI/HD-SDI/CameraLink

Power supplies

Highly efficient power is critical to reducing the weight costs for power in a UAV. Small, more efficient power supplies enable designers to increase the UAV payload. Our portfolio of highly efficient AC/DC and DC/DC converters includes products from some of the industry's most respected and innovative power supply manufacturers.

The standard range starts at starts at 0.25 W DC/DC converters, includes open-frame components and goes up to 25kW AC/DC for customised power-supply units. Our in-house design and customisation capabilities and network of expert partners enable us to help you find, optimise or design the right power supply for your UAV application.



RSG

R-Series

- DC/DC converter
- Output power: 0.25 to 60 W
- Operating temperature: -40 to +125°C
- I/O Isolation: 1000 ~ 6000 VDC



SynQor

MilQor® (Mil-COTS and Hi-Rel)

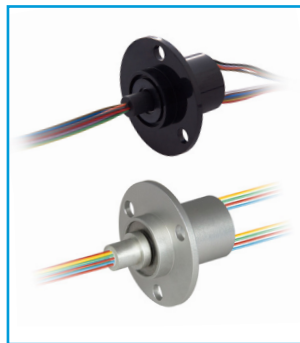
- DC/DC converter
- Output power: 5 to 2000 W
- Continuous short circuit and overload protection with auto-restart feature
- Continuous and transient options available

Slip rings

Slip rings can be used in any system requiring the transmission of electrical or power signals to an intermittently or continuous rotating shaft. They are suitable for transmission of signals, video signals, field buses, and current.

Thanks to the small ring diameter, these slip rings offer low peripheral speed between brushes and rings, as well as reduced dynamic imbalance which means low wear and long life.

Designed to deliver a flexible, cost effective, reliable and high-quality solution, these slip rings are available in many standard configurations and with numerous circuits. Their compact size allows installation into small systems requiring high performances.



Heason / Servotecnica SVTS A Series

- Support current up to a 20A
- 3 to 56 circuits
- Bearings: Miniature, precision steel ball
- Contact: Gold to gold alloy
- Temperature: -20 to +80 °C
- Protection: IP 51
- Operational Life: 10,000,000 revolutions



Heason / Servotecnica SVTS C Series

- Thru holes with 3 to 500 mm diameter
- Up to 96 circuits (more on demand)
- Bearings: Steel
- Housing: ABS (hard plastic)
- Temperature: -40 to +80 °C
- Protection: IP 51 (IP65 option)
- Operational Life: 100,000,000 revolutions

Accelerometers and Gyroscopes

UAV applications have demanding sensor requirements in terms of performance, size and cost. Dependent on the UAV's desired performance, there are a wide range of different sizes and dynamic behaviour, which places various levels of requirement on the inertial sensors used.

We provide advanced tactical grade inertial accelerometers and gyroscopes best suited for demanding UAV applications. These specialist sensors accurately detect any change in direction, orientation and speed, having been designed to give the most accurate measurement for guidance and navigation control, altitude and heading references with unbeatable performance, reliability and stability.

We have the capabilities to design, build and assemble single or multiple sensor assemblies which achieve the most rigorous criteria for accuracy, repeatability and long-term reliability. With access to R&D teams behind the world's most advanced sensing technologies, developing and building custom sensor assemblies that are particularly useful in harsh or high-end applications is quick and easy, helping you to develop groundbreaking designs which incorporate the most advanced sensing technologies.



Colibrys MS1000 tactical grade MEMs accelerometer



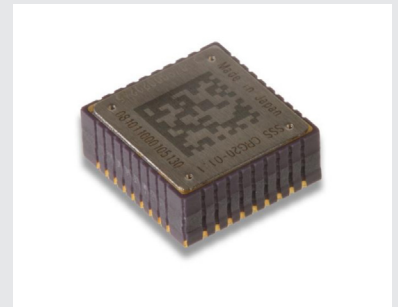
- Long term bias repeatability: 1.2 mg (+/10 g, typ)
- Residual bias modeling error: 0.7 mg (+/10 g, typ)
- Non linearity (IEEE Norm, % of full scale) : 0.3 %

Tronics Gypro 3300 high-performance MEMs gyro



- Z-axis angular rate sensor
- 0.8°/h bias instability
- 0.14°/sqrt (hour) ARW
- Built-in temperature compensation (-40°C to +85°C)

Silicon Sensing CRG20 miniature digital gyro

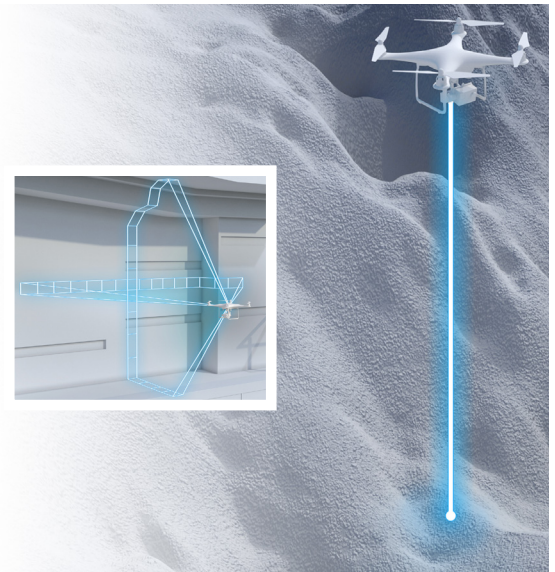


- 5°/hr bias instability
- 40° C to +105° C operating temperature
- ±300°/sec digital dynamic range
- ±0.07 °/s (1σ) bias repeatability

LIDAR, laser altimeter and anti-collision

Our specialist products provide the UAV's autopilot with precise, real-time, height-above-ground-level measurements during the sensitive landing phase and the multi-segment optical sensing technology provides narrow to wide fields of view with lateral discrimination, enabling multiple object detection and distance measurements. This range includes products with no moving parts, so they are ideal to be designed into UAVs for applications such as structural inspection, indoor navigation, advanced landing assistance, or collision avoidance.

Using our experts and partnering with our leading suppliers, we can optimise your products LiDAR performance through its software to increase your UAVs performance and tailor your LiDAR solution to meet the applications exact requirements.



Leddartech – M16



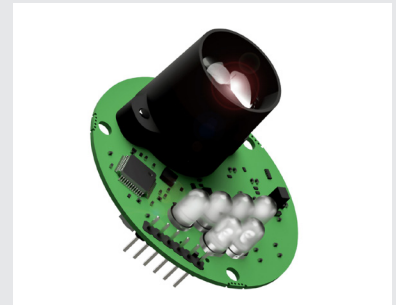
- Detection range: > 146 m
- Size (L x W x H): 62 x 64 x 66 to 63 x 104 x 84 mm
- Weight: 162 to 210 g

Leddartech – Vu8



- Detection range: > 185 m
- Size (L x W x H): 70 x 35.9 x 49.6 to 70 x 35.9 x 71.2 mm
- Weight: 107 to 128.5 g

Leddartech - LEDDAROne

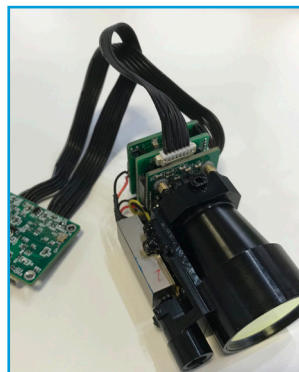


- Detection range: > 40 m
- Size (L x W x H): 50.8 x 50.8 x 30.6 mm
- Weight: 14 g

Low SWaP laser rangefinder modules

Our compact and lightweight laser rangefinder modules are designed for UAVs. These specialist modules can measure distances up to 3 km, within 1 m precision. Their low power consumption and detailed design enables reliable and long-term use under varying environmental conditions.

Our local engineers are available to help, from tailoring your specification through to streamlining delivery with our European dedicated export and stock management team.



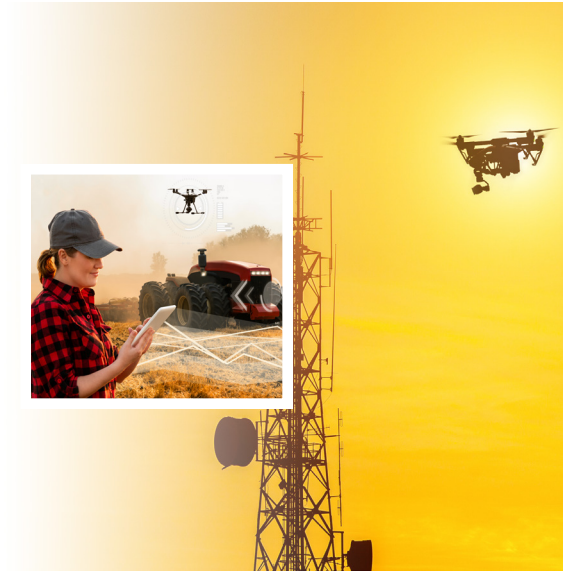
Wavelength Technology LRF

- Ranging capability: 1 or 3 km
- Precision: < 1 m
- Wavelength: 1.5 μ m (eyesafe)
- Low SWaP / Low Price

Cellular for low power UAV applications

Implement remote management and collect data for UAV applications across locations by overcoming the difficult coverage, capacity and cost barriers for battery-operated devices using LPWA modules. Bringing together all the benefits of cellular, with long battery life (up to 10 years) and 20dB increased coverage compared to broadband LTE within urban/condensed areas.

This range is designed specifically for remote device deployment, with best-in-class performing dual-mode modules providing low-cost and extremely low-power technology for low-bandwidth applications, covering worldwide 2G/3G/4G networks. Fully compliant with release-14 and 5G, ready to support future features.



Sierra Wireless WP7700



- CF3 form factor
- Ultra low power mode – 200x less for battery/solar-powered applications
- Industrial grade
- Global coverage
- FOTA upgrades
- Covering bands LTE: B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20, B26, B28

Sierra Wireless WP7702



- CF3 form factor
- Ultra low power mode – 200x less for battery/solar-powered applications
- Industrial grade
- Global coverage
- FOTA upgrades
- Covering bands LTE: B1, B2, B3, B4, B5, B8, B12, B13, B17, B18, B19, B20 with 2G fallback

Sierra Wireless HL7800/02



- CF3 form factor
- Ultra low power mode – 200x less for battery/solar-powered applications
- Industrial grade
- Global coverage
- FOTA upgrades
- Covering bands LTE: B1, B2, B3, B4, B5, B8, B9, B10, B12, B13, B14, B17, B18, B19, B20, B25, B26, B27, B28, B66 with 2G fallback

LoRaWAN

LoRaWAN™ is designed to enable very low-power devices, such as battery-powered sensor modules, to easily communicate at regional, national and even global levels. LoRaWAN provides secure, bi-directional, multicast communication between end-devices and gateways connected to the network server via standard IP connections

System-in-Package (SiP) solutions for LoRaWAN

We also offer a range of stand-alone, compact SiPs for volume applications. Featuring leading chipsets, SiPs can be integrated through a variety of interfaces, such as LPUART, SPI and I2C. Up to 20 GPIOs enabling the connection of multiple sensors, switches and status LEDs to the SiP, reducing overall power consumption.



SparkLAN

WLR5-590 LoRa IoT module

- Based on Semtech SX1276
- STM32L073xZ ARM Cortex-M0+
- Support for 868 MHz and 900 MHz
- SiP module
- Dimensions: 13 x11 mm



USI

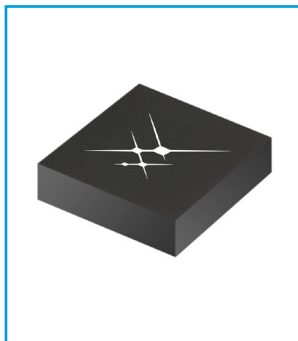
WM-SG-SM-42 LoRa IoT module

- Based on Semtech SX1272
- STM32L052 ARM Cortex-M0
- Support for 868 MHz and 900 MHz
- SiP module
- U.FL antenna connector
- Build-in crystals (32 MHz & 32 kHz low power)

Front End Modules (FEMs)

Front End Modules boost the performance of a chosen SoC and deliver stronger wireless signals at a greater range, benefiting a UAV design. The performance benefits of a FEM mean you can use a more cost-effective SoC with a more reliable, efficient design to reduce the amount of power consumed.

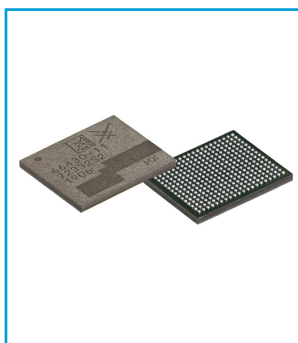
Skyworks supports almost every wireless standard with a dedicated FEM solution - available for every category and standard. Check with our team of experts to discover the latest FEM solutions.



Skyworks Sky66420

Highly integrated RF front end module designed for LPWAN

- Integrated PA with +27 dBm output power
- Integrated LNA with noise figure of 1.5 dB, typical
- Single-ended 50 Ω transmit/receive RF interface
- Supply voltage: 2.0 to 4.8 V



Sky66430

5G Massive IoT System-in-Package

- Integrated baseband, transceiver, RF front end, RAM memory, and power management
- 8.8 mm x 10.8 mm x 0.95 mm BGA package, 0.5 mm pitch
- Device weight: 229 mg
- Operating temperature range: -40 °to +85 °C

Bluetooth and wireless modules

Industrial-grade Wi-Fi modules that are quick and easy to integrate with on-board software stacks and device servers to some of the most compact and advanced solutions in the world – including cutting-edge SiP and SoC solutions from industry leaders USI and Airoha.

System-in-Package (SiP) solutions

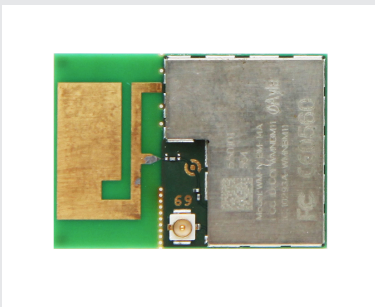
For medium- and high-volume projects, we offer SiP solutions from USI, which provide excellent power-management performance to deliver low-power consumption and extended battery life.

System-on-Chip (SoC) solutions

Medium- and high-volume applications can also benefit from tightly integrated SoC solutions. Airoha increase opportunities for developers to build connected home software and innovative devices through their range of power-efficient Wi-Fi products.

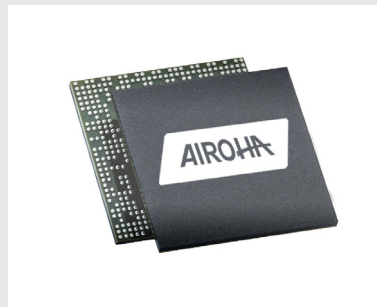


USI SiP solutions



- IEEE 802.11b/g and 802.11n 1x1 single-band 2.4GHz and dual-band, with or without Bluetooth
- Advanced security with WEP 64/128, WPA and TKIP, AES, CCX
- WAPI support
- Serial interface to host – SPI, UART and USB
- RF certification – FCC, CE – with metal-lid shielding

Airoha Wi-Fi / Bluetooth SoC solutions



- IEEE 802.11b/g and 802.11n 1x1 single-band 2.4GHz and dual-band
- Build-in ARM CORTEX-M4 application processor for Wi-Fi, TCP/IP stack
- UART, I2C, SPI, I2S, PWM, SDIO, ADC
- 32 GPIO
- 7.1 x 7.1 x 1.05 mm

Airoha GNSS SoC solutions



- Supporting: GPS / GLONASS / Galileo / BeiDou
- Ultra-low-power
- Dual-frequency
- High precision positioning
- 20 Hz update frequency
- Build-in LNA
- Tracking sensitivity: -165 dBm

GPS and GNSS modules

We offer the industry's smallest fully-integrated and highly-sensitive GPS/GNSS modules. These Global Positioning System (GPS) and Global Navigation Satellite System (GNSS) modules are designed to support ultra-compact applications with features such as low-latency velocity, position outputs and position updates to maximise their performance for UAVs, even in harsh signal environments.

Airoha GNSS modules

Industry leading modules with a broad range of GNSS SoC chipsets that offer accuracy, fast time to fix and power efficiency that's needed in UAV applications with high tracking sensitivity for enhanced performance in dense urban environments.

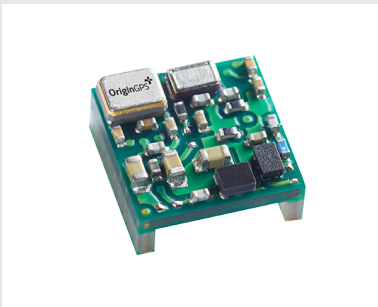
Origin GPS' Spider family

Featuring proprietary NoiseFree Zone System™ technology for high sensitivity and noise immunity, even under marginal signal conditions with superior sensitivity and outstanding performance.

The patented architecture in these modules detects changes in context, temperature, and satellite signals by maintaining and updating its internal fine time, frequency, and ephemeris data, achieving a state of near-continuous availability, while consuming microwatts of battery power.



Origin GPS – Multi Micro Spider ORG4033



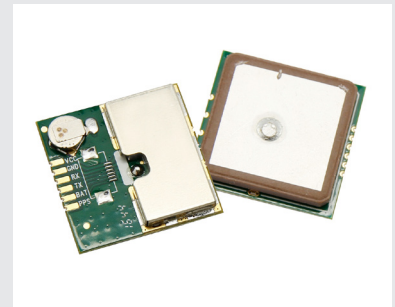
- Frequency band: GPS/GLO/BE/GAL
- Sensitivity (dBm): -165
- Size (LxWxH): 5.6 x 5.6 x 2.65 mm
- Weight: 0.2 g
- Power consumption: 9 mW

Origin GPS Multi Spider ORG4572 – R02/R04



- Frequency band: GPS/GLO
- Sensitivity (dBm): -165
- Size (LxWxH): 7 x 7 x 1.4 mm
- Weight: 0.2 g
- Power consumption: 9 mW

Airoha MT3337 All-in-one GPS SoC



- Frequency band: GPS/GLO
- Sensitivity (dBm): -165
- Size: 52 mm²
- Power consumption: 18 mW
- Compatible with: MT3333

We can work with your team to customise GPS/GNSS modules with multiple antenna configurations and to add onboard flash enabling you to quickly integrate GNSS functionality without adding sizeable hardware.

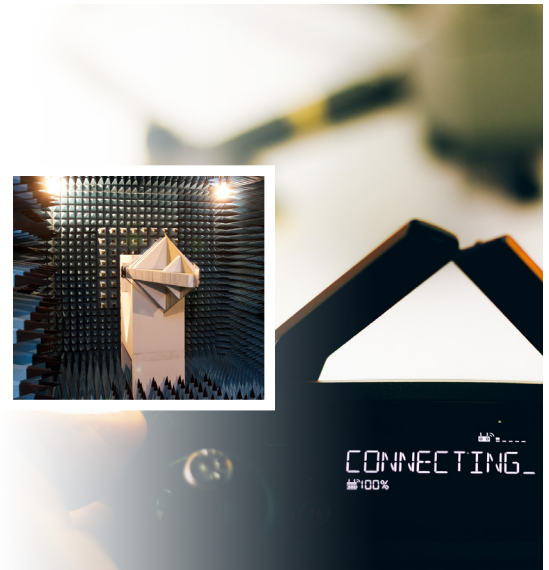
Antennas

A compact UAV design may need the use of an onboard antenna. These antennas can be chip, patch, PIFA antennas, or embedded into the PCB itself. Many factors affect the performance of these types of antenna including - position of other components, the orientation of the unit, materials used in the outer casing, and proximity to the outer casing. A poorly optimised or tuned antenna will have an adverse effect on the wireless range and power consumption.

Reducing RF inference has enabled multiple wireless technologies to co-exist within a few millimetres of one another. Therefore, antenna efficiency, RF isolation and antenna selection are all critical considerations.

We offer a wide range of antennas specifically developed for every wireless technology standard.

Through ProAnt, your RF design can be tested and refined in their anechoic chamber to get the best possible results from your solution, whether it features a standard, modified or fully customised solution.



ProAnt



- OnBoard SMD metal sheet PIFA antennas.
- PCB antennas with cable and connector
- External antennas
- GSM/UMTS/LTE
- GPS/GLONASS
- WLAN/Bluetooth/Zigbee
- ISM bands: 169/315/434/868/915 MHz

Johanson

Miniature RF ceramic chip antennas



- Low-Temperature Cofired Ceramic (LTCC).
- Great detuning resilience
- Extreme temperature stability (~2 ppm)
- GPS/GLONASS
- WLAN/Bluetooth/Zigbee
- ISM bands
- WiMAX
- Ultra-wideband



Your technical design specialist

A complete product and service offering

We deliver total support for your products, designs and solutions, from concept to post-production. Our leading-edge technology portfolio, technical expertise and custom-design capabilities provide you with a service like no other, for any application, in any sector.

An extension of your engineering teams

We have dedicated teams of technical specialists to bring design expertise to your existing engineering teams. Many of our engineers are supplier trained and will work hand in hand with you to get the most from your design and the technology within. With Acal BFi, you can concentrate on your core technologies whilst integrating the latest technology to bring a more advanced solution to market.

Hand-picked solutions from carefully selected technology partners

We offer advanced solutions across our specialist technology areas from the world's leading suppliers and manufacturers. Our close partner relationships enable us to offer solutions beyond the standard product range and tailor these to your exact specifications and requirements.

Custom design to your requirements

From our close supplier relationships and in-house expertise, we can develop and deliver custom designs to your exact requirements. Whether your solution uses fully or semi-custom components, modified standard or a mix of standard solutions, we make sure you get the right solution in terms of performance, cost and specification.

Local support from the experts

Regardless of your UAV application, we work with you to find the right balance of innovative design and leading-edge technologies. Support can start at any stage and lasts for as long as you need it.

Design phase support



- Advice on the best technology to meet your specification
- Technical support on selected products, from initial start to fine tuning
- Detailed responses to technical queries
- Direct access to manufacturer's technical support
- Samples and demonstration models available

Pre-production phase support



- Access to our European Technical Competence Centres
- Access to our UK-based EMC chamber for pre-compliance testing

Production phase support



- Continued technical support for unforeseen production issues

Our European office details



Acal BFi Belgium
Lozenberg 4
1932 Zaventem
Belgium

Tel: +32 (0)2 720 5983
Fax: +32 (0)2 725 1014
Email: sales-be@acalbfi.be
Web: www.acalbfi.be



Acal BFi Nordic AB (Denmark)
Jernbanegade 23 B
DK-4000 Roskilde
Denmark

Tel: +45 70 26 22 25
Fax: +45 70 26 22 21
Email: info@acalbfi.dk
Web: www.acalbfi.se



Acal BFi Nordic AB (Finland)
Teknobulevardi 3-5
FI-01530 Vantaa
Finland

Tel: +358 207 969 770
Fax: +358 207 969 771
Email: info@acalbfi.fi
Web: www.acalbfi.se



Acal BFi France SAS
4 Allée du Cantal
Z.I. La Petite Montagne Sud
CE 1834 - Lisses
91018 EVRY Cedex, France

Tel: +33 (0)1 60 79 59 00
Fax: +33 (0)1 60 79 89 01
Email: sales-fr@acalbfi.fr
Web: www.acalbfi.fr



Acal BFi Germany GmbH
Assar-Gabrielsson-Straße 1
63128 Dietzenbach
Germany

Tel: +49 (0)6074 4098 0
Fax: +49 (0)6074 4098 110
Email: sales-de@acalbfi.de
Web: www.acalbfi.de



Acal BFi Germany GmbH
Oppelner Straße 5
82194 Gröbenzell
Germany

Tel: +49 (0)8142 6520 0
Fax: +49 (0)8142 6520 190
Email: sales-de@acalbfi.de
Web: www.acalbfi.de



Acal BFi Italy SRL
Via Cascina Venina n.20/A
20090 Assago (MI)
Milan
Italy

Tel: +39 02 53583.1
Fax: +39 02 53583201
Email: sales-it@acalbfi.it
Web: www.acalbfi.it



Acal BFi Italy SRL
Via Alessandro de Stefani 60
00137 Roma
Italy

Tel: +39 06 86894259
Fax: +39 06 86895354
Email: sales-it@acalbfi.it
Web: www.acalbfi.it



Acal BFi Netherlands BV
Luchthavenweg 53
5657 EA Eindhoven
The Netherlands

Tel: +31 (0)40 250 7400
Fax: +31 (0)40 250 7409
Email: sales-nl@acalbfi.nl
Web: www.acalbfi.nl



Acal BFi Nordic AB (Norway)
Gigstadsvei 24
3511 Hønefoss
Norway

Tel: +47 (0)32 16 2060
Fax: +47 (0)32 16 2069
Email: info@acalbfi.no
Web: www.acalbfi.se



Acal BFi Nordic AB (Sweden)
Rissneleden 138
SE-17457 Sundbyberg
Sweden

Tel: +46 (0) 8 5465 6500
Fax: +46 (0) 8 5465 6565
Email: info@acalbfi.se
Web: www.acalbfi.se



Acal BFi Nordic AB (Sweden)
Fålhagsleden 59
Box 3002
SE-750 03 Uppsala
Sweden

Tel: +46 (0)18 56 58 30
Fax: +46 (0)18 69 66 66
Email: info@acalbfi.se
Web: www.acalbfi.se



Acal BFi UK Limited
3 The Business Centre
Molly Millars Lane
Wokingham
Berkshire, RG41 2EY
UK

Tel: +44 (0)1189 788 878
Fax: +44 (0)1189 776 095
Email: sales-uk@acalbfi.co.uk
Web: www.acalbfi.co.uk



Acal BFi UK Limited
Challenge House
Sherwood Drive
Bletchley, Milton Keynes
Buckinghamshire, MK3 6DP
UK

Tel: +44 (0)1908 533 460
Fax: +44 (0)1189 776 095
Email: sales-uk@acalbfi.co.uk
Web: www.acalbfi.co.uk



/company/acalbfi



@AcalBfi



/AcalBfi