

## Sense

Position sensors  
Current sensors  
Temperature sensors  
Pressure sensors  
Time-of-Flight  
Environmental sensors

## Store

Industrial Flash products  
Industrial DRAM  
Flash Controllers

## Connect

Ethernet  
RJ45 Jacks | Transformers  
Antennas  
Bluetooth | WiFi | Zigbee | RFID | ISM | GPS  
Industrial modems + routers  
Mobile network analysers

Smart  
**Solutions**  
for **you!**

## About us

In 1986 DACOM West GmbH was established as a distributor for high-quality active and passive electronical components.

Since then we have been an independent, privately owned company, supporting our customers with the implementation of electronical components of the newest generation for telecom, industrial, consumer mediactal and automotive applications.

Our head office is based in Haan (near Düsseldorf), with an additional office located in Bruckbach (Austria), offering short response time due to local availability .

Our Partners are selected based on our core competence and are meant not to compete, but complete each others portfolio.

By concentrating on selected manufacturers, an in-depth technical competence, detailed product knowledge and first class product support is achieved. With most of our suppliers we have long lasting business relationships of more than 10 years.

We are ISO 9001:2015 certified, documenting and acknowledging a complete quality chain from manufacturer to customer.

## Contact

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## Our Partners



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### About Melexis

Melexis N.V., based in Belgium, was founded in 1988. With their experience of more than 30 years, they have become one of the world leaders in automotive semiconductor sensors, as well as a leading player in integrated circuits for motor driving, car networking and wireless communication.

Primarily focused on the automotive market, Melexis is also active in other areas such as industrial and medical sectors, home automation and smart appliances.

Melexis offers a wide range of standard products such as Sensor ICs (Hall-Effect, Optical, Infrared and MEMS), Communication ICs (Low Power RF, RFID and Automotive BUS), Actuator-ICs (for electric motors, electro magnets and LEDs), as well as application specific integrated circuits (ASICs).

Melexis mainly focuses on semiconductors for the automotive industry and is energizing the transition to Electrical Vehicles (EVs). They increase the efficiency of ICE cars. Besides the automotive market, and cater to other markets as well:

- **Alternative mobility**  
Melexis ICs assist e-bikes, drones and other transport means by enhancing range, safety and comfort.
- **Smart appliances**  
Gaming, white goods, e-toys. Melexis ICs bring performance and user friendliness.
- **Smart buildings**  
Smart buildings require smart ICs. Efficiency, security and comfort are all in reach.
- **Robotics**  
Capturing the environment, interpreting this signal and acting accordingly. That's how Melexis innovative ICs enhance robots.
- **Energy management**  
Getting the most out of your energy sources in an efficient way requires specialized Melexis ICs.
- **Digital health**  
Health applications require the most reliable and precise ICs. Melexis has the right solutions.



## Sensing Solutions



### Hall Effect Sensor ICs

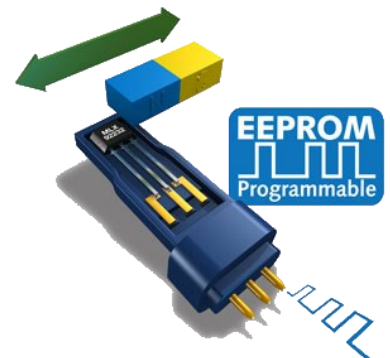
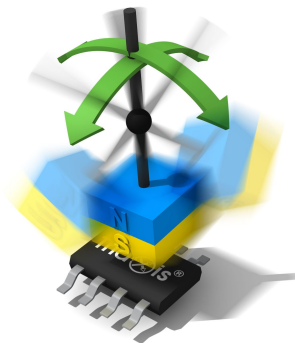
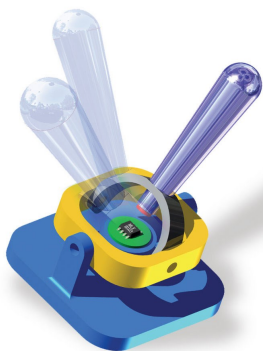
Traditional Hall sensors are only sensitive to the magnetic flux density perpendicular to the surface of the Hall element and consequently of the IC and package. These single-axis devices, despite enabling some applications, often require complex magnetic structures and face accuracy challenges especially over a wide temperature range (due to the thermal drift of the measured magnet). Triaxis® sensors, on the other hand, are based on a patented innovative magnetic sensor technology that enables measurement of the three magnetic flux components (BX, BY and BZ) in a single integrated circuit. This is done by utilizing a unique Integrated Magnetic Concentrator (IMC®). Using the three magnetic components, it is possible to create 2D or 3D sensors that determine rotary (angle), linear (stroke), or even joystick type motion as well as 3D-magnetometers that can output the individual magnetic (BX, BY, and BZ) components.

### Position sensor ICs

Hall based position sensor ICs including the famous Triaxis® technology.

The main task of position sensors is the sensing of angular or linear displacements, distances, gaps, distensions and fill levels.

**Triaxis® sensors**, are based on a patented innovative magnetic sensor technology that enables measurement of the three magnetic flux components (BX, BY and BZ) in a single integrated circuit. This is done by utilizing a unique **Integrated Magnetic Concentrator (IMC)**. Using the three magnetic components, it is possible to create 2D or 3D sensors that determine rotary (angle), linear (stroke), or even joystick type motion as well as 3D-magnetometers that can output the individual magnetic (BX, BY, and BZ) components



### Current sensor ICs

Based on renowned Hall-effect technology

Melexis provides two types of current sensors suitable for a broad range of applications. Conventional Hall sensors are sensitive to the magnetic field perpendicular to the chip surface, planar IMC-Hall® sensors are sensitive to magnetic fields parallel to the chip surface. Each current sensor is individually tested and calibrated over temperature on the Melexis production line. However, in order to achieve optimal accuracy, a final calibration is required at customer-side after assembly to compensate for mechanical tolerances (sensor position deviations, shield dimensions, etc.)

### Latch & switch ICs

Unique latch & switch family with lateral sensitivity

As our world becomes more technology-driven and automated, the role of basic sensors becomes ever more important. More and more systems, including vehicles, household white goods and industrial installations rely on sensing to operate correctly and safely.

Latch and switch devices rely on the principles of the Hall-effect to, through the position of a magnet, determine the physical position of an object.

These on-off switching devices are very common in automotive applications such as braking, shifter applications, doorlocks or seatbelts. However, they are equally valuable to ensure the door of a washing machine is closed, BLDC motor commutation or ensuring that a safety interlock is in place on an industrial machine.

### Speedsensor ICs

Solutions for speed measurement

Speedsensors are used to measure the covered distance or angle per time unit. A major application field is the speed controlling and monitoring of asynchronous drive systems applied in various industries like on- and off-road vehicles, the energy sector, medical sector, automation and machinery sectors. Hall-Effect geartooth sensing makes use of the Hall element to sense the variation in flux found in the airgap between a magnet and passing ferrous gearteeth.

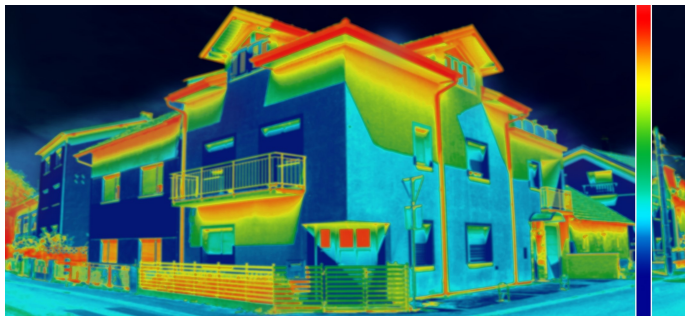
A modern approach is to convert the signal from the Hall element to a digital value and then perform signal processing to create a digital output from that effort.

### Infrared and optical ICs

#### Optical sensor ICs

Small form factor optical sensors with light-to-voltage or light-to-digital output either as single input or linear array

Enabling high accuracy, high resolution, robust and wide field-of-view 3D detection, classification and anti-spoof authentication of persons and objects for automotive, industrial, robotics, security (smart entry, smart cities), etc.



### Development and programming tools

The Melexis family of programmable sensors is designed to be integrated into an application and then programmed. Programming allows for setting the various operating modes inside the chip and for performing an end-of-line calibration which reduces or removes residual error due to mechanical tolerances for example.

## Sensing Solutions

### Pressure sensor ICs

Suitable for a variety of pressure ranges, outstanding in terms of long-term stability and compact size

Melexis' micromachined versatile pressure sensor IC solutions are suitable for a variety of low, middle and high pressure ranges. They excel in long term stability and compact size.

Commonly used to help with the measurement of pressure for certain gasses and liquids, Melexis offers both relative and absolute sensors also for harsh media standard available for the extended temperature range (-40 °C to 150 °C).

### Infrared ICs

Suitable for demanding thermal environments with extended operating temperature range

Non-contact temperature sensing relies on detecting energy emitted in the infrared (IR) wavelength region. Every object emits energy in this way, which can be measured to calculate its temperature. However, as the sensing devices behind this get ever smaller, they become more susceptible to the impact of thermal shocks, which can induce measurement error and thermal noise.

Thermopile temperature sensing technology is increasingly being used in medical (including home healthcare) and industrial applications (like infrared temperature gun), as it is robust, accurate and reliable. A thermopile is simply an electronic transducer that converts thermal energy into an electrical signal and works on the principle that everything emits thermal far-infrared (FIR) radiation.

The PTC-04 programmer is designed for efficient and precise calibration of the Melexis families of programmable ICs and can be easily adapted to a standard PC and to an application module to allow calibration of programmable sensor ICs within the operating environment.

Communication to the PC is done via an RS-232 null modem cable or USB.

The PC requires no custom configuration, allowing the programmer to be used with any PC with a COM port speed of 115.2kbs or a standard USB 1.1 or USB 2.0 (Type A) interface.

## Time-of-Flight Camera Modules

### About BECOM

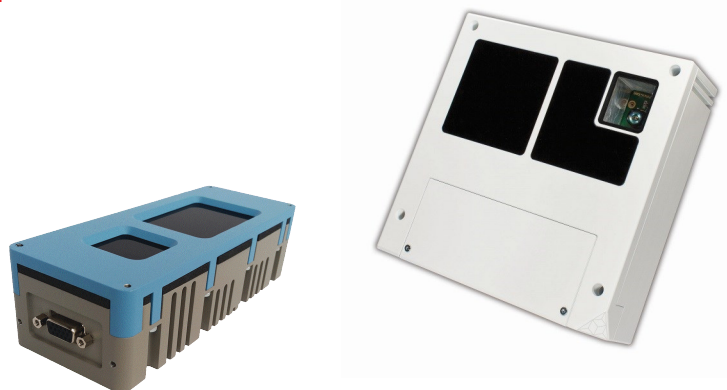
Since 1984 BECOM has been a reliable partner for electronics development, manufacturing and service for its industrial customers. From the first creative idea through the development and validation phase to series production, customers receive everything from a single source. Thanks to international locations and partners, customers all over the world benefit from the high-quality solutions, services and know-how of their experts.

The time-of-flight specialist Bluetechnix joined the BECOM Group in 2016. Thus BECOM expanded its business field with innovative sensor solutions and can offer its customers the decades of experience of the domestic time-of-flight pioneer. The scope of services and the stability of BECOM complement the innovative power of BECOM Systems and guarantee long-term availability and highly efficient processes.

As a system solution provider, BECOM offers fully optimized 3D time-of-flight camera solutions based on customer requirements, complete with integrated application software and support. Innovative ideas and highest quality have made BECOM a reliable partner for all companies. Thus BECOM delivers customized solutions and products, which convince even in demanding environments, such as the automotive and medical industry.

### Product Range

- Depth sensor solutions
- Image processing
- 2D Embedded Vision
- 3D Embedded Vision
- Edge Computing
- Deep Learning & KI



Module Features	
① <b>Sensor Integration</b> Multiple Vendors	④ <b>Optics</b> Lens Concepts, Field-of-View
② <b>Embedded Processing</b> FPGA, ARM, DSP, Host SDK/API	⑤ <b>Illumination</b> LED/Laser, Eye Safety
③ <b>Connectivity</b> ETH, USB, MIPI Synchronisation	⑥ <b>Mechanical Integration</b> Miniaturization, Housings, Cooling

### About SAMYOUNG

Samyoung S&C designs, develops and manufactures environment, safety and health (ESH) related sensors and electronic control systems for commercial and industrial applications. From sensor elements to control modules and wireless transmitters, Samyoung S&C is committed to provide a full spectrum of product solutions and services to meet diverse customer requirements.

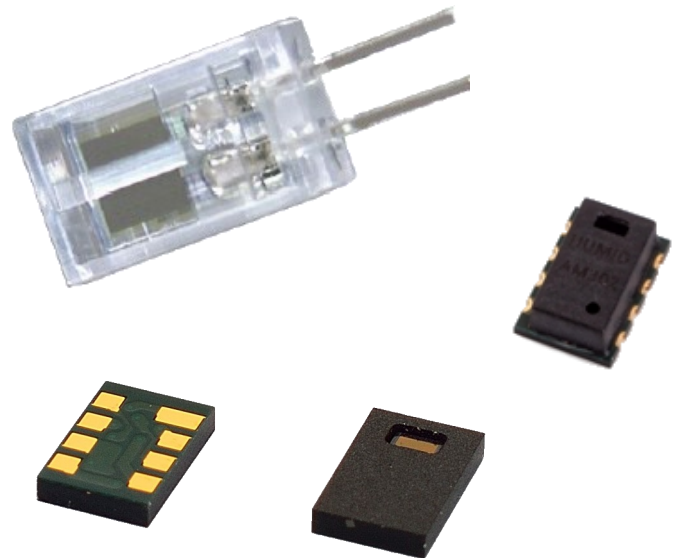
Samyoung S&C was spun off in 2000 as a new product division of Samyoung Electronics, the third largest capacitor manufacturer in the world and continued to grow in its product lines and customer base worldwide as an independent sensor specialist.

Aiming to provide "Sensible Sensing Solutions" to customers' ever-challenging requirements, Samyoung S&C operates a nationally accredited R&D center, world class wafer fabrication and component packaging facilities and state of the art measurement and testing laboratories. All products of Samyoung S&C are developed inhouse and manufactured at the plants in Korea.

Samyoung S&C is certified to ISO/TS 16949, KS Q 14001, ISO 14001 by KMAR.

### Product Range

- Humidity and Temperature sensor solutions
- Resistive RH sensor elements
- Particle/Gas sensors
- Condensation solutions
- Humidity sensors for ADS



### Application Examples

- **Energy saving HVAC control**  
Air conditioning, Refrigeration, IAQ monitoring, Vent Fans, Home Appliances, Humi-/Dehumidifiers
- **Process Control & Instrumentations**  
Medical Instruments, Handheld Devices, Weather Stations, Food Processing, Printers, RFIDs
- **Automobile & Transportation**  
Cabin Climate Control, Defogging Control, Condensing Preventive Device
- **Mass Quantity Application**  
OEM custom specification available



## High Performance Flash



### About Cactus Technologies

Since its foundation in 2005, Cactus Technologies has focused on the main industrial needs for high quality and high performance flash memory devices. Over time, the name Cactus Technologies has been established and is well known in the high-end aerospace, military, medical and industrial markets.

The ability to understand and fulfill the needs for those markets, in addition to the longterm support of the products, proves Cactus Technologies' whole hearted commitment to the industrial grade area where "failure is not an option".

Their primary focus is on the high performance, high endurance industrial grade SLC NAND Flash products, which shows specialized features like full BOM control, long term availability, security features and massive customization options.

To meet the requirements of applications that are more price sensitive, but still need a higher reliability than MLC can provide, Cactus Technologies offers a complete range of OEM grade products based on MLC NAND using a newer controller technology feature called pSLC. With pSLC mode, the endurance of the used MLC NAND memory is drastically enhanced and shows a good balance between cost efficiency and quality. All features like BOM control and the customization options are also available for the new series.

Cactus Technologies also offers low cost commercial grade MLC NAND Flash product series for price sensitive applications. Special features include a BOM control and a PCN/EOL Management, which are unique in this price segment.

### Product grade overview

Flash comparison			
	Industrial Grade	OEM Grade	Commercial Grade
NAND Types	SLC (Single Level Cell)	pSLC (Pseudo SLC)	MLC (Multi Level Cell)
Bits/Cell	1	1	2
Endurance Cycles	100k / 80k / 50k (*)	20k	3k
Reliability	★★★★★	★★	★
Data Retention	★★★★★	★★	★
Life Cycle	★★★★★	★★	★★
Locked BOM	✓	✓	✓
Cost	\$\$\$\$\$	\$\$\$	\$\$

(\*) Physical NAND cell endurance depending on the used NAND technology (4X nm / 3X nm / 2X nm)

### General Features

- Production standard according to DIN ISO 9001 & ISO14001
- Fixed BOM, PCN and PDN service
- Serialization and Lot Code Tracking
- 5 years warranty (SLC Products)
- Long term availability
- MIL-STD specifications available
- PRO-Feature Set with extended security and Military compliant Fast Erase Options
- Extended SMART, TRIM and NCQ support
- Customized modifications

## Industrial Grade (SLC)

### Features

- Up to ~100k erase-/write-cycles (physical)
- >4 Million hours MTBF
- Up to 70k IOPS
- MIL-STD specifications available
- 5 years warranty
- Life cycle monitoring and prediction via Utility
- SMART support
  - Standard, Extended & Extra Commands via Utility
- Customized modifications:
  - Programmable CID register of SD-Card
  - Customized drive size and geometry (C/H/S)
  - Individual labeling and serial number
  - Preload service
  - Changed physical dimensions and sockets
  - Additional Interfaces (e.g. USB)
  - Erase Button
- Full BoM Control with PCN-/EOL-Management

### Pro Version Features

- ATA Security Feature Set
- CTPurge: erase only, erase and random overwrite of data once or n-times, several specs available
- CTLock: Lock card to host system
- Write Protect: by soft- or hardware (write-protect switch)
- Set Password, Unlock, Erase, Disable



Product Range

Interface	Flash Type	Capacity	Temperature Range		BOM	Warranty	Options
			Standard	Extended			
SATA SSD 2,5"	SLC	4 GB - 256 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Contact us
mSATA	SLC	4 GB - 128 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Contact us
CFAST	SLC	4 GB - 128 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Contact us
M.2 (2242)	SLC	8 GB - 64 GB	0°C - 70°C	-40°C - 85°C	✓	5 years	Contact us
IDE SSD 2,5"	SLC	128 MB - 64 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Pro features available
IDE DOM	SLC	128 MB - 8 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Pro features available
CompactFlash	SLC	128 MB - 64 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	Pro features available
SD Card	SLC	128 MB - 16 GB	-25°C - 85°C	-45°C - 90°C	✓	5 years	
SD Chip	SLC	128 MB - 8 GB	-25°C - 85°C	-45°C - 90°C	✓	5 years	
microSD Card	SLC	1 GB - 4 GB	-25°C - 85°C	-45°C - 90°C	✓	5 years	
USB Thumbdrive	SLC	128 MB - 32 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	
USB DOM	SLC	128 MB - 8 GB	0°C - 70°C	-45°C - 90°C	✓	5 years	

## OEM Grade (pSLC)



### What is pseudo-SLC (pSLC)?

Pseudo-SLC NAND uses MLC NAND Memory in a different way by storing only one bit of information per cell instead of the two bits usually stored in a MLC NAND cell. This is effective enough to raise the endurance of a standard MLC NAND cell up to 6 times, depending on the data profile used. The OEM Grade flash storage devices are built using that feature and provide a solution for all applications which are in need of a fair balance between endurance and pricing.

Additional features, like a locked BOM, PCN/EOL management and extended temperature range are also provided by Cactus Technologies for the OEM Grade products.

### Features

- Cost effective, high quality MLC Flash in pSLC Mode
- Designed for standard and price sensitive applications where commercial Grade MLC does not meet endurance requirements
- > 20k erase-/write cycles (physical)
- SMART support
  - Standard, Extended & Extra Commands via Utility
- Standard and ext. temperature range
- Long term availability
- Locked BOM available
- PCN Management
- 2 years warranty (1 year at ext. temp)
- Complete customization available
- Available custom modifications (examples):
  - Programming PNM field in CID register of SD-Card
  - Customized drive size and geometry (C/H/S)
  - Individual labeling and serial number
  - Preload service



Product Range							
Interface	Flash Type	Capacity	Temperature Range		BOM	Warranty	Options
			Standard	Extended			
SATA SSD 2,5"	pSLC	8 GB - 512 GB	0 °C - 70 °C	-40 °C - 85 °C	✓	2 years	
mSATA	pSLC	4 GB - 128 GB	0 °C - 70 °C	-40 °C - 85 °C	✓	2 years	
CFAST	pSLC	4 GB - 128 GB	0 °C - 70 °C	-40 °C - 85 °C	✓	2 years	
SATA M.2 (2242&2260)	pSLC	4 GB - 128 GB	0 °C - 70 °C	-40 °C - 85 °C	✓	2 years	
SD Card	pSLC	4 GB - 64 GB	-25 °C - 85 °C	-40 °C - 85 °C	✓	2 years	

## Commercial Grade (MLC)

### Why Commercial Grade?

For the most price sensitive industrial/embedded applications, which are still in need of a higher endurance than any consumer product can provide, Cactus Technologies offers an industrial version of cost effective MLC NAND products. Due to the strict use of 2-bit per cell Flash memory, a much higher endurance can be achieved. While current 3-bit per cell (TLC) consumer products show a physical endurance of merely 300 write/erase cycles per cell, the 2-bit per cell (MLC) memory achieves an physical endurance of around 3000 write/erase cycles.

Additional features, like a locked BOM, PCN/EOL management and extended temperature range are also available for the Commercial Grade products, as well as a wide range of customization options, which makes it a cost effective solution with a wide variety of interfaces and form factors.

### Features

- Cost effective, high quality MLC Flash
- Designed for standard and price sensitive applications
- > 3k erase-/write cycles (physical)
- SMART support
  - Standard, Extended & Extra Commands via Utility
- Standard and ext. temperature range (dep. on model)
- Long term availability
- 2 years warranty (1 year at ext. temp)
- Available custom modifications (examples):
  - Programming PNM field in CID register of SD-Card
  - Customized drive size and geometry (C/H/S)
  - Individual labeling and serial number
  - Preload service



Product Range							
Interface	Flash Type	Capacity	Temperature Range		BOM	Warranty	Options
			Standard	Extended			
Crypto SATA SSD 2,5"	MLC	512 GB - 1 TB	0°C - 70°C	-40°C - 85°C	✓	2 years	Contact us
SATA SSD 2,5"	MLC	16 GB - 1 TB	0°C - 70°C	-40°C - 85°C	✓	2 years	
mSATA	MLC	8 GB - 512 GB	0°C - 70°C	-40°C - 85°C	✓	2 years	
CFAST	MLC	8 GB - 128 GB	0°C - 70°C	-40°C - 85°C	✓	2 years	
SATA M.2 (2242&2260)	MLC	8 GB - 256 GB	0°C - 70°C	-40°C - 85°C	✓	2 years	
NVMe M.2 (2242&2280)	MLC	16 GB - 256 GB	0°C - 70°C	-40°C - 85°C	✓	2 years	
NVMe M.2 (2280)	3D NAND	128 GB - 1 TB	0°C - 70°C	-40°C - 85°C	✓	2 years	
CompactFlash	MLC	4 GB - 128 GB	0°C - 70°C	n/a	✓	2 years	
SD Card	MLC	4 GB - 128 GB	-25°C - 85°C	-40°C - 85°C	✓	2 years	
microSD Card	MLC	8 GB - 32 GB	-25°C - 85°C	n/a	✓	2 years	

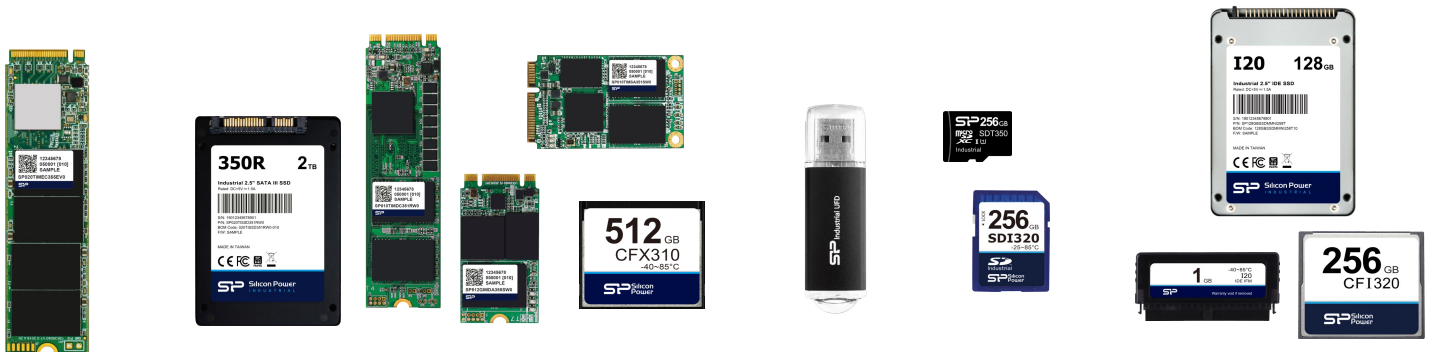
## Industrial Flash Solutions



### About Silicon Power Industrial

Silicon Power, founded in 2003, produces DRAM and Flash products for the consumer and industrial area. Due to the significantly higher requirements in the industrial sector, separate R&D departments have been set up to meet the customer specific challenges in the industrial environment. By testing each and every product, quality features like chip screening, burn-in tests, or a consistent traceability of every product - including the production history - Silicon Power is in a good position to meet even the highest requirements in the areas Industrial, Medical, Military and Aerospace.

Common for all products is a long term availability of at least 5 years and a sophisticated BOM- and EOL-/PCN-Management. Safety comes with a long warranty of 5 years (and within TBW) for SLC products and 3 years (and within TBW) for MLC/3D-TLC products.

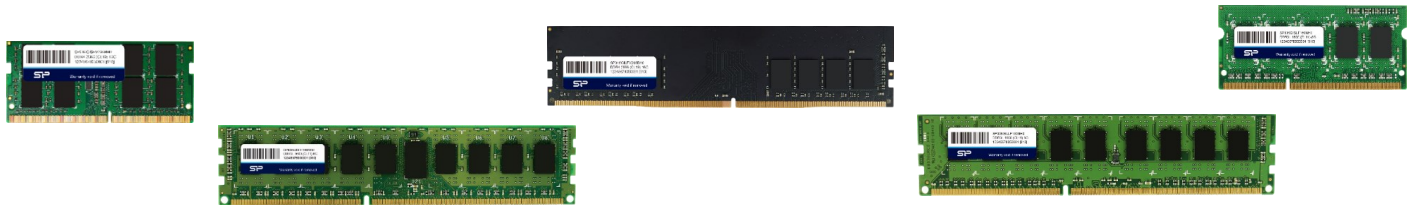


Form Factor	NAND type / Capacities				
	SLC	MLC	3D TLC	pSLC (MLC)	pSLC (3D TLC)
M.2 2280 (NVMe)	-	-	64GB - 2TB	-	-
M.2 2242 (NVMe)	-	-	128GB - 1TB	-	-
M.2 2280 (SATA)	8GB - 64GB	16GB - 512GB	64GB - 1TB	8GB - 128GB	16GB - 256GB
M.2 2242 (SATA)	-	-	64GB - 512GB		16GB - 128GB
2.5" SSD (SATA)	8GB - 256GB	32GB - 1TB	64GB - 1TB	16GB - 512GB	16GB - 256GB
Cfast	4GB - 64GB	8GB - 512GB	64GB - 512GB	8GB - 256GB	32GB - 128GB
mSATA	8GB - 32GB	4GB - 256GB	64GB - 1TB	16GB - 128GB	16GB - 256GB
CompactFlash	128MB - 16GB	8GB - 256GB	-	4GB - 128GB	-
2.5" SSD (IDE)	1GB - 128GB	32GB - 128GB	-	-	-
DOM (IDE)	128MB - 1GB	-	-	-	-
SD	256MB - 32GB	8GB - 256GB	32GB - 256GB	4GB - 128GB	-
microSD	256MB - 8GB	8GB - 128GB	32GB - 256GB	4GB - 64GB	16GB - 64GB
USB (3.0)	-	8GB - 64GB	32GB - 512GB	-	-
USB (2.0)	512MB - 16GB	8GB - 32GB	-	4GB - 16GB	-

### About Silicon Power DRAM

Silicon Power's DDR3 and DDR4 DRAM modules are produced using the highest quality standards and provide a price effective and reliable solution for any industrial purpose. All products are fully tested to guarantee stability, reliability and compatibility. The DRAM modules are also available with an optional 30µ gold finger plating and/or with an extended temperature range of -40°C to -85°C to enable the usage in more rugged environments.

Silicon Power provides a 10 year warranty for all modules.



DDR3 DRAM Modules

	SODIMM	UDIMM	VLP-UDIMM	ECC SODIMM	ECC UDIMM	ECC RDIMM
Capacities	2/4/8GB	2/4/8GB	2/4/8GB	4/8GB	4/8GB	8GB
Clock	1600MHz	1600MHz	1600MHz	1600MHz	1600MHz	1600MHz
CAS Latency	CL11	CL11	CL11	CL11	CL11	CL11
PCB Height	30,50mm	30,50mm	18,90mm	30,50mm	30,50mm	30,50mm
0 °C - 85 °C	✓	✓	✓	✓	✓	✓
-40 °C - 85 °C	✓	✓	✓	✓	✓	✓



DDR4 DRAM Modules

	SODIMM	UDIMM	ECC SODIMM	ECC UDIMM	ECC RDIMM
Capacities	4GB, 8GB, 16GB	4GB, 8GB, 16GB	4GB, 8GB, 16GB	4GB, 8GB, 16GB	4GB, 8GB, 16GB
Clock	2400/2666MHz	2400/2666MHz	2400/2666MHz	2400/2666MHz	2400/2666MHz
CAS Latency	CL17/CL19	CL17/CL19	CL17/CL19	CL17/CL19	CL17/CL19
PCB Height	30,13mm	31,40mm	30,13mm	31,40mm	31,40mm
0 °C - 85 °C	✓	✓	✓	✓	✓
-40 °C - 85 °C	✓	✓	✓	✓	✓

## Highly reliable flash memory controller

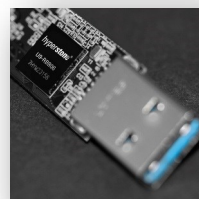
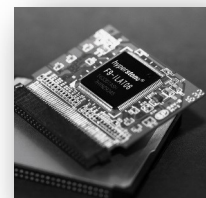
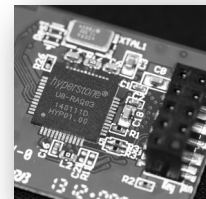
### About Hyperstone

Hyperstone is a fabless semiconductor and microprocessor design company. It was founded in 1990 and is based in Konstanz, Germany. Hyperstone's portfolio includes microcontrollers for Serial-ATA and Parallel-ATA Solid State Disks (SSD), Disk-on-Module (DoM), Disk-on-Board (DoB) as well as embedded Flash solutions such as eMMC. Flash cards such as CompactFlash, SD & microSD and USB controllers complete the portfolio.

Flash controller firmware is supplied complementary to the controllers and is customized for each flash type and application. Together with subsidiaries in Taiwan, USA and with other worldwide partners, Hyperstone serves a global customer base. The company's research and development departments are based in Germany and Taiwan. Industry-leading partners provide world-class wafer subcontracting, packaging, and testing services.

### General Features

- Industrial flash memory controllers for
  - USB
  - SD/eMMC
  - CompactFlash/ATA
  - SATA
  
- hyReliability™ Flash Management ensuring highest reliability and endurance, including
  - Superior wear leveling
  - Read disturb management
  - Power fail management
  
- hyMap® page-based firmware
- FlashXE® (advanced ECC algorithms, etc.) (X1 only)
- Individual Firmware customization
- High performance 32-bit RISC/DSP Architecture (Dual Core 32-bit Architecture for X1)
- ISO7816 Interface for SmartCard or GPIO applications
- Turnkey Solution: Hardware & complementary firmware delivery
- Continuous support for all new flash generations
- Long term service and support



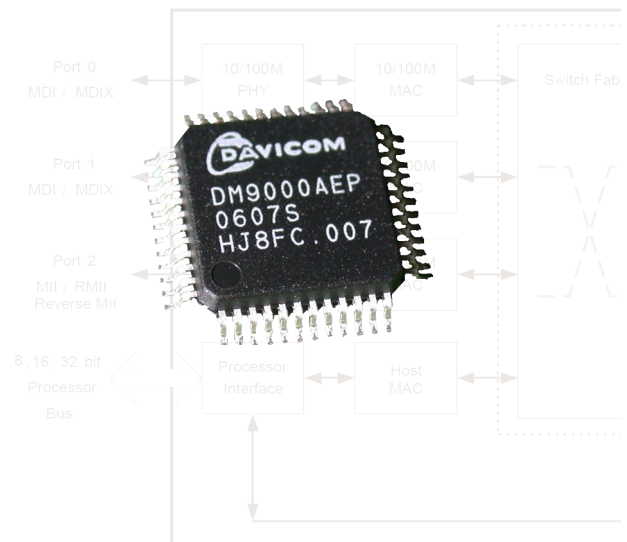
Product overview												
Product	Interface	Flash Type				Channel	Temp. Range	Max. Speed (to host)		ECC	Packages	In-field FW Update
		SLC	MLC	pSLC	3D			Read (MB/s)	Write (MB/s)			
X1	SATA	✓	✓	✓	✓	2	0°C...70°C -40°C...85°C	550	500	FlashXE®	TFBGA-124   TFBGA-144 Die/Wafer	✓
F9	CF/PATA	✓	✓	✓	✓	2	0°C...70°C -40°C...85°C	120	120	Up to 96-Bit/1K	TQFP-128   TFBGA-144 TFBGA-124   Die/Wafer	✓
A2	SATA	✓	✓			4	-40°C...85°C	150	130	24-Bit	TFBGA-201   Die/Wafer	✓
S9	SD/eMMC	✓	✓	✓	✓	1	-40°C...85°C	90	90	FlashXE®	LGA-52   LGA-64 Die/Wafer	✓
USB	USB 2.0	✓	✓	✓	✓	1	-40°C...85°C	60	60	Up to 96-Bit/1K	QFN 76	✓
U9	USB 3.1	✓	✓	✓	✓	2	-40°C...85°C	200	150	Up to 96-Bit/1K	TFBGA-124   Die/Wafer	✓



## Networking and communication IC's

### About Davicom

In 1989, United Microelectronics Corporation (UMC), one of the largest semiconductor manufacturers in Taiwan, set up the Communication Product Division to develop Networking products. Later in May of 1996 Davicom Semiconductor Inc. was founded. Today Davicom has successfully become one of the leading IC design houses in Taiwan. They aim to manufacture the most professional technique of Communication and Network ICs. By way of mixing signal design and IC integration, Davicom provides customers with the best solutions of SoC chipsets in Local Area Network (LAN), Wide Area Network (WAN), Personal Computing (PC), and internet areas.



### MAC/PHY Controller

The single-port embedded ethernet controller chips support SPI/8/16/32-Bit parallel and PCI Bus Interfaces. They integrate a Fast Ethernet MAC+PHY and 4k Dword SRAM in a low lower and high performance process that supports 3.3V with 5V IO tolerance. All controllers are fully compliant to IEEE802.3 and support HP's Auto MDI-X feature.

All controllers support generation and validation of TCP/IP and UDP checksum to reduce application controller load. Early TX minimizes the latency of the device.

Drivers for Windows CE, VX Works and Linux are available for quick and easy integration.

MAC/PHY Controller										
Product	Interface			External Interface	Speed (copper)	MDI-X	Max. Current	Temperature Range		Package
	8/16-bit	32-bit	PCI					MII/RMII	Mbit/s	
DM9000B	✓				10/100	✓	130 + 40*	✓	✓	LQFP 48
DM9010B	✓	✓		✓	10/100	✓	130 + 40*		✓	LQFP 100
DM9102H			✓	✓	10/100	✓	130 + 40*	✓	✓	LQFP 128

\* with transformer



## Networking and communication IC's



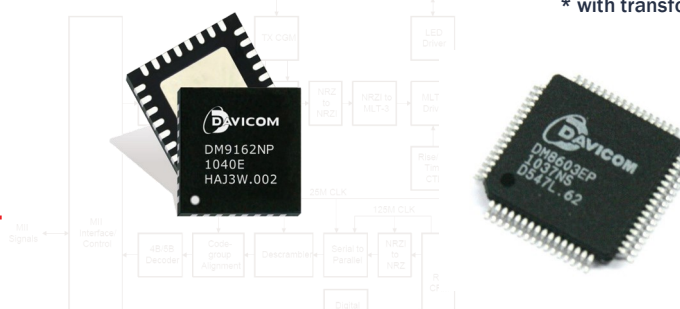
### Single PHY Transceiver

Davicom's single-port PHY series are low power Physical Layer Transceiver in LQFP-48 and QFN-32/24 packages. They are fully compliant to IEEE 802.3, IEEE 802.3u 10Base-T / 100 Base-TX and ANSI X3T12 TP-PMD 1995 standards.

The front-end can drive 10Base-T, 100Base-TX TP-transformer and FX-transceiver. Available Interfaces for connection to MAC layer chips, switches or microcontrollers with integrated MAC are MII, RMII and SMI/GPSIA. An integrated wave filter saves external filters for the signal forwarding in 100Base-TX or 10Base-T modes.

Single PHY Transceiver									
Product	Interface	Speed (copper)	Speed (fiber)	MDI-X	50 MHz RMII Clock	Max. Current	Temperature Range		Package
		Mbit/s	Mbit/s			mA	0°C–70°C	-40°C–85°C	
DM9161A	MII/RMII	10/100		✓		52 + 40*	✓		LQFP 48
DM9162	MII/RMII	10/100	100FX	✓	✓	90 + 40*	✓	✓	LQFP 48
DM9119	GMII/RGMII	10/100/1000		✓	✓	100	✓	✓	QFN-64

\* with transformer



### Switch Controller

Davicom's fully integrated switch controllers are a cost-effective solution for multiple situations. Providing several interfaces from 8-bit to PCI, they offer the flexibility for almost any architecture. Equipped with up to six ports and an extended temperature range, the switch controllers fit to most applications.

Switch Controller													
Product	Interface					Speed (copper)	MDI-X PHY	Ports	STP	Temperature Range		Max. Current	Package
	8/16-bit	32-bit	PCI	MII/RMII	RGMII					Mbit/s	0°C–70°C		
DM8603				✓		10/100	2	2	✓ +RSTP	✓	✓	280 + 80*	LQFP 64
DM9006	✓					10/100	2	2	✓	✓	✓	280 + 80*	LQFP 64
DM9016	✓	✓		✓		10/100	2	3	✓	✓	✓	280 + 80*	LQFP 128
DM9106			✓	✓		10/100	2	3	✓	✓	✓	350 + 80*	LQFP 128
DM8806				✓	✓	10/100/1000	5	6	✓ +RSTP +MSTP	✓	✓	510 + 240*	QFP 128

\* with transformer



## Siretta

Enabling the Industrial IoT

## Cellular Network Analysers

Due to the high demand of application specific solutions in the IoT marketplace, Siretta has designed a range of industrial products which satisfy many of these key areas.

Siretta offer everything from embedded industrial modems which can be integrated directly into customers applications to signal analysers which offer a complete breakdown of network availability. Sirettas industrial routers offer a stable, robust and fast network connection for your connected equipment which allow you to offer additional services and enhanced solutions to many different industry sectors.

### Cellular Network Analysers

The SNYPER family of signal analysers is sophisticated yet easy to use with a large and bright, full colour display. The range is offered in both 2G/3G and 2G/3G/LTE cellular technologies to cover all network cell towers in use today. The SNYPER is a hand held, battery operated unit and can operate for several hours between charges (depending on use). It analyses all cellular signals from any network at any particular site being surveyed and displays the results in a simple and easy to understand format.

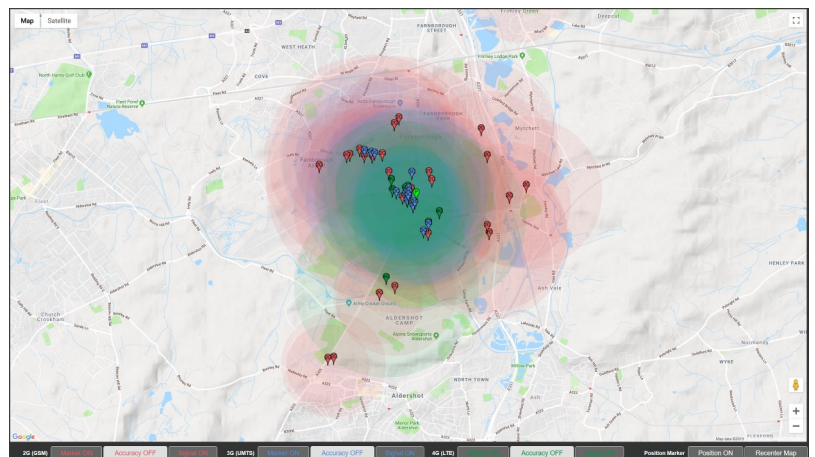


Snyper Network Analysers

Type	Frequency Coverage	2G GPRS	3G UMTS	4G LTE	LTE Cat.M NB IoT	Save 50 surveys	Scan Realtime	Autosave	RTC	Temperature Range
SNYPER-3G	Global	✓	✓							-10 °C to 50 °C
SNYPER-3G Spectrum	Global	✓	✓			✓	✓			-10 °C to 50 °C
SNYPER-LTE+	EU / US	EU	✓	✓						-10 °C to 50 °C
SNYPER-LTE+ Spectrum	EU	✓	✓	✓		✓	✓			-10 °C to 50 °C
SNYPER-LTE Graphyte	EU / US	EU	✓	✓		✓	✓	✓	✓	-10 °C to 50 °C
SNYPER-LTEM	Global	✓			✓				✓	-10 °C to 50 °C

### CloudSURVEY Map Portal

The CloudSURVEY portal allows you to export and save all of your cellular survey results from a compatible SNYPER product to your account in the cloud. The CloudSURVEY software has a host of features, allowing you to view approximate base-station positions on a map and determine the most suitable network for your application. The CloudSURVEY portal simultaneously calculates the entire available network resources in the area where the survey was performed and displays the relative dominance of each mobile network operator. This allows you to make an informed decision about the optimal cellular network, taking into consideration network technology, network reliability, average signal strength, base-station position and network density.



## Industrial Modems & Routers Antennas, RF Cables



The Siretta industrial modem & router solutions are a family of cellular enabled modems which have been designed to an industrial specification to allow an easy connection for remote devices over the internet. The family of products supports a standard set of features including a wide range and robust power supply, RS232 and USB serial connectivity and extended temperature spec as standard.

Each member of the family supports an embedded TCP/IP stack for simple network connectivity and an enhanced set of AT commands to support many advanced features such as FTP, email, SMS, CSD, direct socket connections and over the air software updates. As a result the units are designed to be used as a direct replacement for existing equipment and can be easily setup with the correct commands to operate out-of-the-box.

The industrial modem family can be configured to detect the cellular network provider, signal strength and can perform a complete network survey to establish the optimum network for the location.

### Cellular Modems

Industrial Cellular Modems										
Type	Frequency Coverage	2G GPRS	3G UMTS	4G LTE	LTE Cat M LTE NB IoT	RS232	USB	Low Power	GPS	Temperature Range
ZETA_NLP-LTEM	Global / EU	✓			✓	✓	✓	✓		-40 °C to 85 °C
Zeta-N-LTE	EU	✓	✓	✓		✓	✓			-40 °C to 85 °C
ZETA-UMTS	Global	✓	✓			✓	✓		Optional	40 °C to 85 °C
ZETA-GPRS	Global	✓				✓			Optional	40 °C to 85 °C



### Cellular Routers

Industrial Cellular Routers										
Type	Frequency Coverage	Mobile Band	WiFi	GPS	10/100 LAN -Ports	SIM Slots	Serial I/F	GPIOs	Temperature Range	
QUARTZ	EU	2G/3G or 3G/4G	Optional	Optional	2	2	RS232	3	-30 °C to 70 °C	
QUARTZ Gold	EU	3G/4G	2.4/5GHz	Optional	1 (Gbit/s)	1	RS232 RS485		-30 °C to 75 °C	

### Antennas

The antennas from Siretta are available in different mounting types and cover either one, or — as combo antenna — several frequency ranges from the groups

- 2G/3G/4G/Wifi4/5/6 / ZigBee / Bluetooth
- GPS/GNSS
- ISM151-2450 / LoRa/Sigfox



## IIoT communication modules

### About REYAX

Established in 2008, REYAX Technology Co., Ltd is a total solutions provider of high quality modules, engineering designs and supply chain services to electronics manufacturers. Their portfolio includes MQTT IoT Cloud Platform-/Bluetooth-/Wi-Fi-/RFID-/GPS-/LoRa- and NB-IoT-modules that can be applied in fields of industrial electronics, security monitoring or Internet of things.

Under the background of profound electronic technology, Reyax establishes a solid foundation of professional technical services and provides customized services such as design and development, in order to help customers enter the target market and expand their business.

### Wi-Fi modules

- Standard form factors available
  - USB M.2
  - PCIe M.2
  - solderable module
- Linux support
- 2.4GHz and 5GHz (802.11a/b/g/n)
- Additional integrated Bluetooth 5.0 module
- 40°C - +85°C
- Ultra low power versions available
- DVK's available



### RFID/NFC

- 13.56MHz RFID & NFC systems
- ISO14443A/B, ISO15963
- ISO/IEC 18092, FeliCa
- Integrated Encoders & Decoders
- Active and passive target
- 40°C - +85°C
- Reader module available as miniPCIe



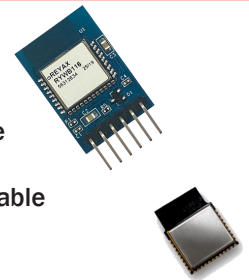
### 3G/4G

- 3G WCDMA 7.2Mbps & GNSS
- LTE Cat1 / Cat4 up to 150Mbps
- Optional WiFi / WiFi Hotspot
- 40°C - +85°C
- Mini PCIe Card (USB 2.0) and plug PCB versions available



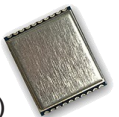
### Bluetooth

- Bluetooth 4.2/5.0/5.1
- Long Range versions available
- 40°C - +85°C
- Ultra low power versions available
- DVK's available



### ISM

- Sub-GHz RF Transceiver (433/868/915MHz)
- Ultra low RX current consumption (4.5mA)
- High RX sensitivity
- Programmable data rate (2Kb/s to 150kb/s)
- Programmable TX power (-40dBm to 12dBm)
- 3- or 4-wire SPI interface
- 40°C - +85°C



### GPS/Glonass/BeiDou

- GPS/GLONASS/SBAS/QZSS/BeiDou and Galileo
- Ultra low power versions available
- Mini PCIe / M.2 / Module versions available
- 40°C - +85°C



### LoRa

- Wide product range (426 to 915MHz)
- Transceiver modules and modems
- High sensitivity
- Controlled via AT commands
- Small size solderable or miniPCIe module
- 40°C - +85°C



## Ethernet Transformers RJ45 Connectors



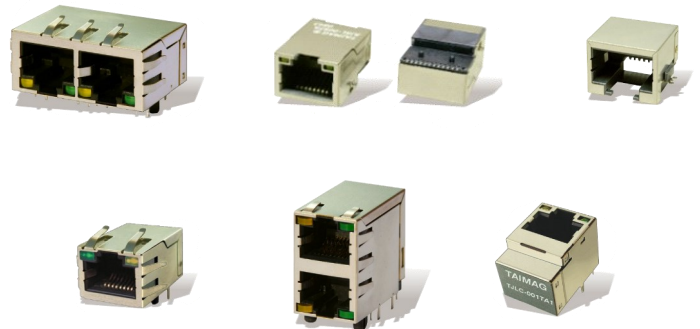
### About Taimag

Taimag was founded in 1977 with its headquarters located in Kaohsiung, Taiwan. The first years of production were focused on transformer type designs. Learning from their initial transformer designs, Taimag now produces a diversified list of magnetic products, which include 10/100 Base to 1000 Base Transformers, ADSL, ISDN, and Home LAN components for high frequency applications. Additionally Taimag produces DC/DC converters, common mode EMI suppression components, chokes and filters.

As one of the worldwide leaders in supply and manufacturing, Taimag offers an extensive line of state-of-the-art catalog products at a cost effective rate. Taimag is a global supplier of components to OEMs, contract manufacturers and CEMs. Taimag is an ISO9001 certified company and their products are recognized and approved by UL (Underwriters Laboratory).

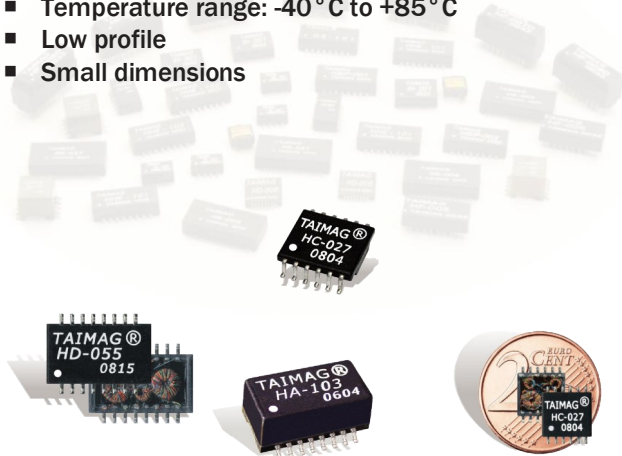
### Features

- Low profile for space critical applications
- Extended temperature range (-40°C to +85°C)
- A variety of port combinations
- Versatile LED configuration possibilities
- Combined connector with USB
- Customized solutions available
- First and Second source w. cross-reference to competitors
- Samples available on request for evaluation



### Transformers

- 1-, 2-, 4-port
- 10/100/1G/2.5G/10G Base-TX
- Auto MDI-X
- Power over Ethernet (PoE) - 350–700mA
- Temperature range: -40°C to +85°C
- Low profile
- Small dimensions



### RJ45 Connectors

- With / Without:
  - 10/100/1000Base-TX Transformer
  - LEDs
  - Metal shield
  - EMI finger
  - USB ports
- THT / SMD
- Auto MDI-X
- Power over Ethernet (PoE)
- Tab up, Tab down
- 90° / 45° / 180°
- Multiport / Stacked Multiport
- USB-A Ports
- Extended temperature range: -40°C to +85°C
- Low Profile

### About Ubec

Founded in 2002, Uniband Electronic Corporation (UBEC) is an international fabless semiconductor company specializing in the design and manufacture of ICs for wireless applications. With its headquarters in Hsin-Chu Taiwan, UBEC focuses on the development of the front-end devices and system solutions that utilize Radio Frequencies. UBEC offers various RF solutions and places a high priority to work closely with their BB, MAC, and micro-controller partners. Their mission is to develop high quality products with competitive price-/performance ratio and time-to-market advantages.

### Product Range

- 2.4 GHz Transceiver ICs
- 2.4 GHz Modules
  
- Sub-GHz Transceiver ICs
- Sub-GHz Modules

### Transceiver IC Features

#### 2.4 GHz

- ISM Band 2.405 - 2.480 GHz operation
- IEEE 802.15.4
- Hardware CSMA-CA mechanism
- Dual RX FIFOs
- Hardware security engine
- optional ARM Cortex M0

#### Sub-GHz

- Regional operation bands (863–930MHz) for worldwide usage
- IEEE 802.15.4
- High RX sensitivity (-91dBm - 105dBm)
- Hardware CSMA-CA mechanism
- Automatic ACK response supported
- FCS check supported

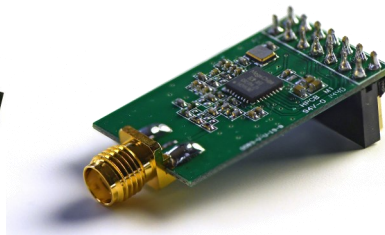
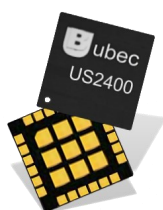
### Module Features

#### 2.4 GHz

- ISM Band 2.405 - 2.480 GHz operation
- IEEE 802.15.4
- 3V - 3.6V V<sub>CC</sub>, 1.8V V<sub>CC</sub> version available
- Low power/current consumption
- PCB antenna or SMA connector
- Small Dimensions
- Shielding case optional

#### Sub-GHz

- Regional operation bands (863–930MHz) for worldwide usage
- IEEE 802.15.4
- 2V - 3.6V V<sub>CC</sub>
- GFSK/FSK/MSK Modulation
- Programmable output power
- SMA connector
- Small Dimensions
- Shielding case optional



## Hardwired TCP/IP Chips



### About WIZnet

WIZnet is a fabless IT company that provides internet processors for the IoT. They are the sole innovator to patent the hardwired TCP/IP technology into a microprocessor chip in 2001. Since then, a yearly average of 10 million WIZnet chips have been used in various embedded internet devices worldwide. WIZnet is the trend leader of open source hardware. Their TCP/IP hardwired Chips integrate Layers 1 (PHY) and 2 (MAC) and additionally Layers 3 and 4 (TCP/IP) of the Ethernet protocol on a gate level. The WIZnet solution is integrated in Arduino's Ethernet Shield and has been recognized as de facto standard for IoT.

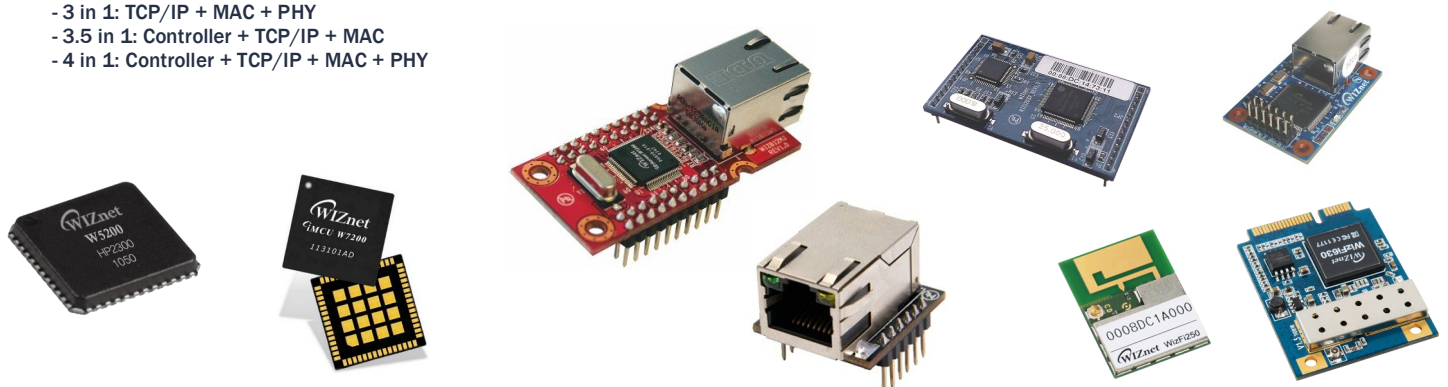
All products are available as IC or as several versions of modules with advanced features for applications to be connected to the networked world. The portfolio consists of I/O Modules, Serial-to-Ethernet Modules and wireless modules. Please contact us for more detailed information.

### TCP/IP Hardwired Stack ICs

TCP/IP Hardwired Stack											
Product	Integration	Interface				Speed Mbit/s	PHY	Max. Sockets	Buffer	Temperature Range	Package
		SPI	8-bit	16-bit/DMA	MII / RMI						
W5100S	3 in 1*	✓	✓			10/100	MDI-X	4	2x8kB	-40 °C - 85 °C	LQFP 48 QFN 7x7
W5300	3 in 1*		✓	✓	✓	10/100	MDI-X	8	128kB	-40 °C - 85 °C	LQFP 100
W5500	3 in 1*	✓				10/100	✓	8	32kB	-40 °C - 85 °C	LQFP 48
W6100**	3 in 1*	✓	✓			10/100	MDI-X	8	32kB	-40 °C - 85 °C	LQFP 48 QFN 7x7
Internet Offload Processor											
		RAM	Flash	Controller	Ext. I/F						
W7100A	4 in 1*	64kB	64kB	8051	32 GPIO 19 GPIO	10/100	MDI-X	8	32kB	-40 °C - 85 °C	LQFP 100 QFN 64
W7500	3.5 in 1*	16kB- 48kB	128kB	Cortex M0	48 GPIO	10/100		8	32kB	-40 °C - 85 °C	TQFP 64
W7500P	4 in 1*	16kB- 48kB	128kB	Cortex M0	48 GPIO	10/100	MDI-X	8	32kB	0 °C - 70 °C	TQFP 64

- \* - 2 in 1: TCP/IP + MAC
- 3 in 1: TCP/IP + MAC + PHY
- 3.5 in 1: Controller + TCP/IP + MAC
- 4 in 1: Controller + TCP/IP + MAC + PHY

\*\* pin-compatible to W5100S





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