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endrich NEWS

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GERMAN DESIGN AWARD 2025

Dr. Christiane Endrich und Zoltán Kiss

Den GERMAN DESIGN AWARD 2025 haben wir für unsere selbst entwickelte Funk-Datenlogger-Produktfamilie für die industrielle Kältetechnik gewonnen.

Eine zentrale Herausforderung in der industriellen Kühlung ist die automatische Datenerfassung an Geräten in Einzelhandelsgeschäften. Für einen effizienten Betrieb von Kühlern und Gefriergeräten müssen Daten zu Temperatur, Luftfeuchtigkeit, Vibrationen, Lärm, Stromverbrauch, Türöffnungen und Anomalieerkennung gesammelt werden. Wir haben ein modernes, stromsparendes, drahtloses Sensornetzwerk entwickelt, das diese Daten erfasst und in die Cloud überträgt.
Eine professionelle Dashboard-Software ermöglicht die Visualisierung, Geolokalisierung und Alarmierung für eine reibungslose, proaktive Verwaltung.
Die Produktfamilie der Funkdatenlogger bietet eine innovative Lösung zur automatischen Datenerfassung von Kühl- und Gefriergeräten in Einzelhandelsgeschäften. Mit ihrem stromsparenden, drahtlosen Sensornetzwerk ermöglichen sie eine effektive Überwachung und Verwaltung der Kühlgeräte, was zu einem effizienteren Betrieb beiträgt und den Energieverbrauch optimiert.

ENS16x & ENS17xA

Versatile digital air quality sensors for building automation, household appliances and automotive applications

Air is composed of 78 % nitrogen, 21 % oxygen and 1 % traces of other gases. In indoor spaces, human activities and the infrastructure (paints, PVC, carpets, adhesives, solvents, electronic products…) itself introduce additional contaminants such as carbon dioxide (CO_2), carbon monoxide (CO) and a mix of gases, called volatile organic compounds (VOCs).

When indoor air is not sufficiently ventilated, contaminants build up, negatively impacting our health, but also reducing our ability to recall information and maintain productivity.

According to the World Health Organization, household air pollution is one of the leading causes of diseases and premature death in the developing world. As a matter of fact, those VOCs are two to five times more likely to be found. VOCs are known to cause eye irritation, headache, drowsiness, or even dizziness, also known as Sick Building Syndrome (SBS). Prolonged exposure can lead to serious illness or even death.

If we look at specific ventilation guidelines, such as those issued by the German Environmental Agency (UBA), we see that the CO_2 limit, at which air is considered bad and ventilation is required, is set at 1,500 ppm.

In the 19th century, Max von Pettenkofer proved that a correlation exists between CO_2 and VOC concentration levels in living environments, thus making CO_2 a suitable replacement for VOCs when evaluating indoor air quality.

This explains the omnipresence of CO_2 sensors in demand-controlled ventilation (DCV) systems nowadays, and their use to curtain contamination from air pollutants.

ENS16x (Automotive-Grade ENS17xA) is a range of digital multi-gas metal oxide (MOX) sensors, specifically designed for indoor air quality monitoring, offering an unrivaled wealth of fully processed outputs including low-power operating modes.

With its innovative TrueVOC® technology the ENS16x combines detection of a wide range of gases including volatile organic compounds (VOCs) and oxidizing gases with intelligent on-chip algorithms. It calculates a series of fully processed outputs such as CO_2-equivalents, TVOC-equivalents, a 5-step Air Quality Index (AQI) according to the UBA (German Environmental Agency) and a 500-step relative AQI according to ScioSense. Moreover, the ENS16x offers full humidity compensation plus low power operating modes for power-constrained designs. TVOC measures the Total Volatile Organic Compound concentration and is used by several countries as an indicator of indoor air quality. Limits and recommendations are based on a large number of studies correlating health issues to prolonged exposure to high TVOC levels.

The major advantage of eCO_2 over pure CO_2 measurements is its ability to capture odors and bio-effluents that are completely invisible to CO_2 sensors.

ScioSense

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IEWS

ICU-30201

High-performance ultra-compact ultrasonic time of flight sensor for ultra-long-range applications

Conventional technologies commonly used to measure distances to people/objects and to ascertain their positions include BLE (Bluetooth Low-Energy, RFID (Radio Frequency Identification) trackers, UWB (ultra-wideband), and ultrasonic sensors. The key requirements for real-world applications of social distancing alarms and contact tracing in today's environment are accuracy in distance measurement, low power consumption for longer battery life, and a smaller and reliable device with near-zero false warnings.

Distance measurement is as accurate as less than 1cm for ultrasonic sensors and less than 10cm for UWB, compared to as much as several meters for BLE, which is not enough to detect two people as they approach the recommended safe distance of approximately 2 m. Moreover, ultrasonic sensors consume much less power than UWB, enabling a small compact proximity tag to operate several days on a single battery charge. Technologies using radio waves, including UWB, can give false positives to people getting close to each other through a wall or a glass. Ultrasound determines contact through the air, giving almost no false positives.

Ultrasonic sensor outperforms conventional ultrasonic sensors, UWB, and Bluetooth in size, accuracy, power consumption, and false alarm rate. Ultrasonic sensor is a sensor that detects the distance to an object by emitting ultrasonic pulses and measuring the time-of-flight (ToF) it takes for them to be reflected back. TDK 's ultrasonic Time-of-Flight (ToF) sensors provide range-finding, distance measurement, and presence detection on an integrated MEMS PMUT (Piezoelectric Micromachined Ultrasonic Transducer) with an ultra-low power SoC (System on Chip) in a miniature reflowable package.

These sensor solutions are capable of ranging to targets of any composition up to 5 meters in any lighting condition, making them ideal for a variety of applications including: obstacle avoidance, presence detection, robotics, security & surveillance, AR/VR, drones, liquid level sensing, smart home/ building, and general IoT.

The ICU-30201 is a high-performance ultrasonic Time-of-Flight sensor that is ideal for measuring the range of objects between 30cm and 9.5m and offers a customizable field-of-view of up to 180°. It has a sample rate of 18 samples per second at 9 meters. It comes in a 5.17 × 2.68 × 0.9 mm LGA package and includes an integrated DSP for signal processing.

The ICU-30201 extends battery life via its ultra-low power consumption (22 µA – 318 µA) and is highly flexible thanks to a large amount of embedded program and data memory. It is also available in a module.

People with tags can be detected and alerted instantly when they get close to each other.

TDK

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HOW TO FIX ACOUSTIC COMPONENTS IN PRACTICAL?

Experience shows that most users will face the challenge of "How to best fix an acoustic component correctly?" in their environment of a given application.
Condensing about 30 years of dialogue with users for these components, it's time to summarize the essence from our findings in an understandable way, to prevent any (costy) mis-experiences for anyone who is new to this problem.
The secret is basically about "form-fitting" or "force-fitting" an acoustic component to its surrounding, mostly to place it into some "given" housing environment in which the designer has "left some space for it".
It can be a good idea (especially for a loudspeaker or sound generator), to fix it tight with the housing, to use the whole device as additional resonator to reach maximum sound output. This can work or not – as we will see later.
So, it's good to look for methods of fixing the part inside the given housing, but please always leave sufficient space to let the front diaphragm move sufficiently. Guidelines can often be found in the product data sheet of the specific part.
The ideas and designs of fixing such parts are manyfold, often influenced by the "most economic" assembly mode in users production.
Sometimes, a simple double-side adhesive ring around the front edge will do, sometimes clamping from the back side (using some additional rubber on the back, to ensure correct pressure). And if the part should have specific "mounting ears", it's easy to be fixed by screws or "hot stemming" method.
Please avoid to put punctual pressure on the circumference, as this will often result in un-wanted audible resonances.

However in case of microphones, the problem is different and more specific: generally, microphones do collect all kind of sound from their environment, which can also be un-wanted of course. It is the "weak point" of SMD-mics on any PCB, if they are too sensitive for sound resulting from the device internally: because being placed fix on a PCB, it might result in trouble, resulted by disturbing structure-borne sound, which is also recorded alongside, without being needed.
One solution can be to have an "own small" PCB to host the mic, which is then connected via flexible cabling, or to use some "classic" Electret Condenser Microphone in a rubber holder, and with flexible cables to connect it. This way, the construction will suppress any un-wanted coupling.

Endrich supports any possible fittings "ready made for use" by our manufacturing partners, be it adhesive rings, dust caps or backward rubbers etc.
If special cabling or connector type is requested fitted to our part, please let us know your special requirements in detail.

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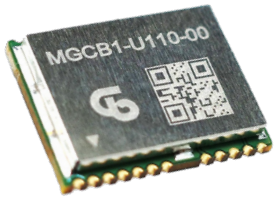
IEWS

INPAQ GNSS MODULES - PRECISE SOLUTIONS FOR MODERN NAVIGATION

The new Inpaq GNSS modules deliver highly accurate positioning and reliable performance across a wide range of applications, including automotive, IoT, and industrial sectors. Designed for versatility and ease of integration, these modules combine compact dimensions with robust functionality, making them ideal for both large-scale and specialized deployments.



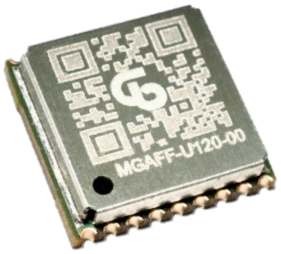
FREQUENCY BAND	MODULE	SATELLITE SYSTEM	INTERFACE	POWER SUPPLY	DIMENSIONS
L1	MGAFF-U110-00	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (1.8 V)	3.3 V	12.2 x 16 x 2.5 mm
	MGAFF-U120-00	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (1.8 V)	3.3 V	9.7 x 10.1 x 2.5 mm
	MGAFF-U120-01 (add two pins)	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (1.8 V)	3.3 V	9.7 x 10.1 x 2.5 mm
	MGAA1-U185-00 (with antenna)	GPS/GLONASS	UART (1.8 V)	3.3 V	16 x 16 x 7.5 mm
	MGAFF-U310-00	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (3.3 V)	3.3 V	12.2 x 16 x 2.5 mm
	MGAFF-U320-00	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (3.3 V)	3.3 V	9.7 x 10.1 x 2.5 mm
L1+L5	MGCB1-U110-00	GPS/GLONASS/Galileo/BeiDou/QZSS	UART (1.8 V)	3.3 V	12.2 x 16 x 2.5 mm

COMPLETE SOLUTIONS BY INPAQ

Inpaq offers a comprehensive ecosystem for navigation solutions. In addition to GNSS modules, the company provides a range of GNSS antennas. These antennas are engineered to work seamlessly with the GNSS modules, ensuring optimal performance and enhanced signal accuracy.

APPLICATIONS

- **Vehicle navigation:** ideal for car navigation systems and dashcams
- **IoT devices:** reliable positioning data for precise applications
- **Smartwatches and fitness devices:** accurate tracking of location and movement patterns
- **Agriculture:** supports precision farming with accurate GPS data for tractors and harvesters



BAND	ANTENNA	DIMENSION	CONNECTOR	SHIELDING
L1	B3G02G-S3-01-A	49.14 x 46.14 x 15.94 mm	SMA PLUG	With shielding
	GPSGLONASS03D-S6-33	34.5 x 37.5 x 12.5 mm	SMA PLUG	With shielding
	GPSGLONASS03N-S3-03-A	25 x 25 x 8.25 mm	IPEX MHF	Without shielding
L1+L5	GPSLX06G-S6-01-A	49.14 x 46.14 x 15.94 mm	SMA PLUG	With shielding
	GPSLX09U8W-S6-01-A	65 x 65 x 27.7 mm	SMA PLUG	With shielding
	GPSLX09N-S6-14	25 x 25 x 11.82 mm	IPEX MHF	Without shielding

INPAQ
INPAQ EUROPE GmbH

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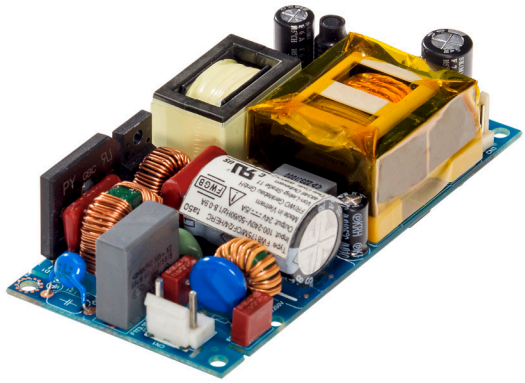
HERC OPEN FRAME POWER SUPPLY

Small, powerful, and versatile

New, powerful open frame product series for industry and medical applications

FRIWO revolutionizes its existing open frame product portfolio with the new device series 'HERC'. The product name stands for 'High Efficiency and Rapid Customization' and already expresses two essential features of the compact built-in power supplies: very high efficiency (high efficiency and low standby losses) meets an adaptable open design for quick customer-specific changes. The first families of the new product series include output voltages of 12, 24, and 48 VDC in the power classes of 60 W, 175 W, and soon 250 W.
In terms of efficiency, the power supplies, with up to 94 %, are also among the top performers. FRIWO also sets standards in terms of no-load power consumption: the requirements according to DOE VI for external power supplies are exceeded, which is unusual for open frame power supplies. The devices can be used in an ambient temperature range of -25° C to 70° C. A dual power concept allows for use as both a convection-cooled and a fan-cooled power supply.
The HERC series meets the medical requirements of IEC60601-1 and can be used worldwide at altitudes of up to 5000 meters.



HERC Open Frame Power Supply 175 W / 24 V

APPLICATIONS

- Medical devices (e.g., dental drills)
- Coffee machines
- Conveyor belt technology
- Door/locking systems
- Robotics / audio / video
- Information technology

FEATURES

- Small, powerful, and versatile
- High efficiency
- Meets the medical requirement IEC60601-1
- Operation at altitudes up to 5000 m
- Power classes of 60 W, 175 W, and 250 W (available in 12, 24, 48 V)
- Compliance with the Hazard Base Standard IEC62368-1
- Convection-cooled and fan-cooled power supply
- Meets the EMC standard 4th edition IEC60601-4-5

FRIWO

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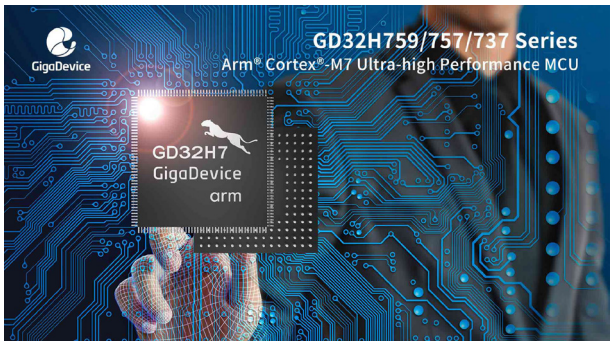
IEWS

GD32H737/757/759 SERIES CORTEX®-M7 CORE ULTRA-HIGH PERFORMANCE MCU

Powerful on-chip integration

The GD32H7 MCU series adopts an Arm® Cortex®-M7 high-performance core based on Armv7E-M architecture, with up to 600 MHz clock frequency.

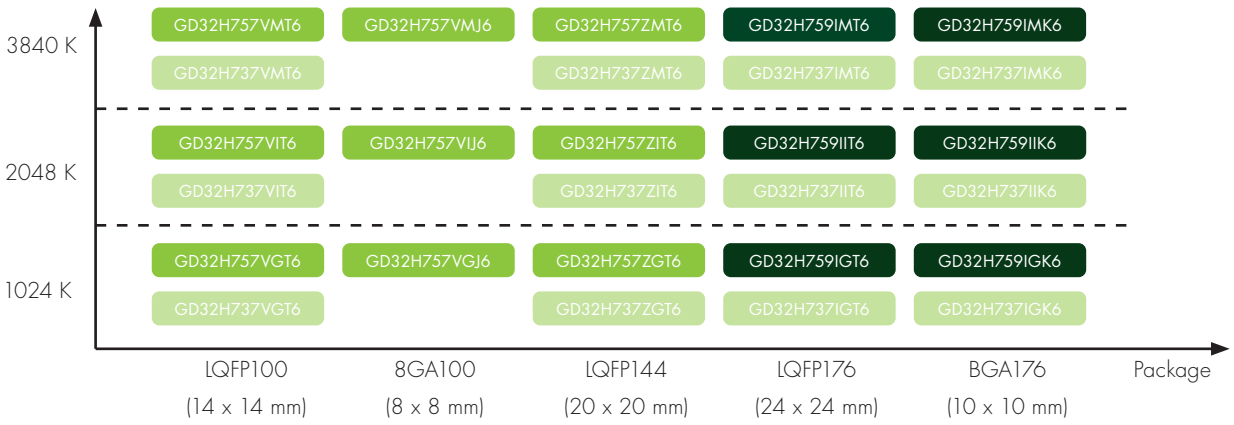
GD32H737/757/759 series MCU has excellent energy efficiency, rich connectivity features and multiple security mechanismus, with high-performance processing and optimized cost control, unleash the innovative potential of advanced applications in many market segments, like digital signal processing, motor frequency control, power suppliy, energy storage systems, audio/voice recognition, and graphic/image applications. Thanks to its ultra-high CPU core clock speed and large memory size, the product also supports applications requiring intensive processing capabilities, such as machine learning (ML) and artificial intelligence (AI).



Features

- GD32H7 Cortex®-M7 high-performance line
- 1024 K-3840 K Flash, 1024 K SRAM (512 K TCM), 64 K L1-Cache
- 1.71 V-3.6 V supply, 5 V tolerance, I/Os
- -40 °C to +85 °C industrial level operating temperature
- Series pin to pin compatible an flexible S/W compatible

GD32H7 Ultra-high Performance MCU



GigaDevice

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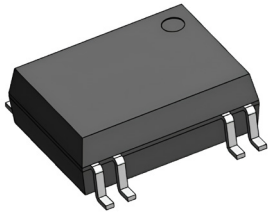
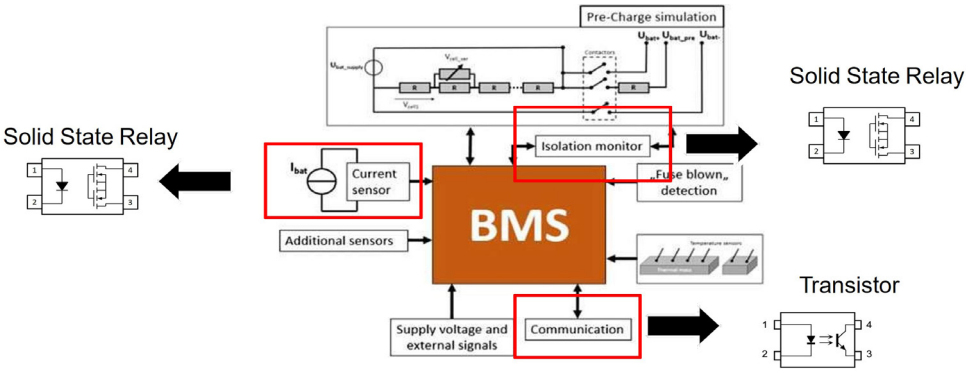
AUTOMOTIVE GRADE MOS RELAY EV16150A-G



EVERLIGHT introduces a new Automotive Grade solid state relay (SSR). The EV16150A-G series products are solid state relays containing an infrared LEDs on the input side optically coupled to a high voltage output detector circuit. The detector on the output side consists of a photovoltaic diode array and MOSFETs. They can enable AC/DC and DC only output connections.

The single channel configuration is equivalent to 1 form A electromechanical relay. This MOS relay is offered in a 16-Pin LSOP package and is design according to the requirements of the automotive Industry. With a load voltage of 1500 V this part fits ideally for electric vehicle (EV) battery management systems, but also suitable for other applications with higher loads.



APPLICATIONS

- EV / Battery management system
- Industrial controls
- Automotive circuits

FEATURES

- Signal pole: normal open
- Low operating current
- 1500 V output withstand voltage
- Wide operating temperature of -40 °C to +125 °C
- High isolation between input and output (Viso = 5000 Vrms)
- UL/cUL and VDE approved
- Pb- & Halogen-free, RoHS & REACH compliant
- AEC-Q certified

EVERLIGHT

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