

02/2025

endrich NEWS

www.endrich.com

WE ARE AT THE EMBEDDED WORLD IN NUREMBERG - FROM MARCH 11-13, 2025

This year, we have the honor of presenting you the latest developments of the Endrich IoT platform. You will see innovative technological solutions and practical application examples. We will also be showing a world premiere: our battery-free LoRaMesh and NeoMesh node families. Another highlight is our AI-powered chatbot, which is operated by AWS and acts as a real-time IoT dashboard.

We will also exhibit the latest generation of capacitive touch monitors, which have been specially designed for demanding applications in the industrial, medical and marine sectors. In our ARM®-based System-on-Modules (SoM), we will be presenting the new PicoCore™, which is equipped with the powerful i.MX 93 CPU from NXP®. In a live demonstration, we will showcase the impressive AI capabilities of this new CPU, including AI-assisted component recognition for the THT soldering process.



embeddedworld
Exhibition & Conference

11.3. - 13.3.2025
NUREMBERG | GERMANY

HALL 1 | BOOTH 1-464

WE ARE PART OF IT!

We are happy to take time for your individual concerns! Let us arrange an appointment in advance. You can reach us at: **embedded@endrich.com**

Book your ticket for the visit now! To ensure that you receive your ticket on time, it is necessary to activate it in advance by registering.



Your personal
voucher code:
ew25542608

GIGADEVICE'S GD32VW553 RISC-V CORE WI-FI 6 MCU



The GD32VW553 MCU series supports Wi-Fi 6 and Bluetooth LE 5.2 wireless connectivity. It features advanced radio frequency integrated circuits

(RFIC), enhanced security mechanisms, generous storage capacity, and a wide range of universal interfaces. Leveraging a mature process platform and cost-effective optimization, it consistently delivers solutions for market applications demanding efficient wireless capabilities.

With its excellent edge processing and connectivity features, GD32VW553 applies to various wireless application scenarios, including smart home appliances, smart home systems, industrial Internet, and communication gateways. This MCU series is

also well suited for scenarios with budget constraints, making it an ideal choice for office equipment, payment terminals, and various IoT products.

Key features of the GD32VW553:

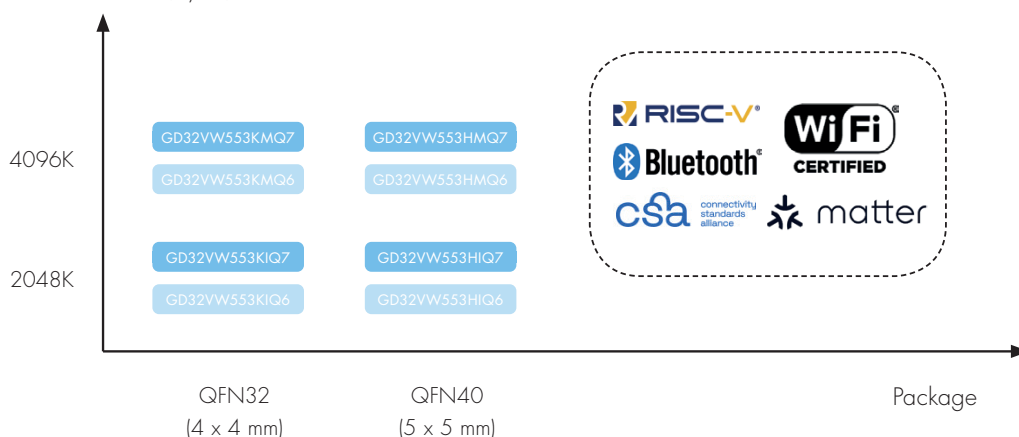
- RISC-V core running up to 160MHz
- Supports Wi-Fi 6 and Bluetooth LE5.2
- Two package options: QFN40 and QFN32
- Up to 4MB of Flash, 320KB of SRAM
- Industrial temperature support: up to 105 degrees
- Wealth of security features: WPA3, Hardware encryption/decryption engine, Public Key Cryptographic Acceleration Unit, TRNG

Target application areas:

- Smart home appliances
- Smart home system
- Industrial internet
- Communication gateways

GD32VW553 Combo Wireless Series

Flash / SRAM Size (Bytes)



NEWS

ENS21X HIGH PERFORMANCE FAMILY OF DIGITAL HUMIDITY AND TEMPERATURE SENSORS

Temperature and humidity sensors play a vital role in measuring and monitoring the ambient temperature and humidity levels, providing valuable information for maintaining optimal performance, ensuring safety, and protecting sensitive components.

With industry leading accuracies down to 0.1°C temperature and 0.8% relative humidity, their rapid response and reliable, long-term performance, the ENS21x family addresses the fields of home appliances, building and automotive HVAC, cold chain management, personal health and wellness monitoring, industrial automation and instrumentation.

Encapsulated in a tiny QFN4 package, the devices feature an I²C interface to communicate with an external host processor. Moreover, the ENS21x family provides digital, pre calibrated outputs (Kelvin and % relative humidity) and works well with ScioSense’s gas sensor portfolio.



Application Reference Table

	T - Accuracy	T - Range	RH - Accuracy	RH - Range	Target
ENS215	<±0.1°C	10 – 50°C	±0.8%	20 – 80%	Peak performance for instrumentation
	±0.15°C	-20 – 70°C	±1.1%	0 – 20%	
			±1.5%	80 – 95%	
ENS213A	±0.15°C	0 – 70°C	±1%	60 – 95%	Premium accuracy at high humidity for automotive, appliances and cold-chain management
			±1.5%	30 – 60%	
			±2.5%	Otherwise	
ENS212	±0.15°C	-20 – 70°C	±1.5%	10 – 90%	Premium consumer, appliances, IoT devices, building automation and HVAC
			±2%	Otherwise	
ENS211	±0.15°C	0 – 70°C	±2%	10 – 90%	Consumer, appliances, smarthome, IoT devices & wearables
			±3%	Otherwise	
ENS210A	±0.15°C	0 – 70°C	±2%	0 – 85%	All-purpose automotive grade device
			±3%	85 – 95%	

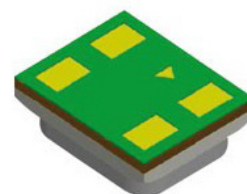


MICROPHONES: COMPARISON OF ECM AND MEMS



The **Electret Condenser Microphone (ECM)** is based on an electrostatic principle in which sound waves cause a change in capacitance between a diaphragm and a backplate, resulting in evaluable changes in electrical voltage. ECMs are available with different polar patterns (omnidirectional, unidirectional and bidirectional), each suitable for specific applications such as music production or voice recording in different environments. ECMs also offer flexibility in terms of installation, and additional functions such as noise suppression can be implemented by making the appropriate selection.

MEMS microphones (Micro-Electro-Mechanical Systems) are characterized by their compact design and high robustness, which makes them ideal for portable devices such as smartphones and smartwatches. They integrate digital and analog signal processing directly in the microphone chip, which saves space and makes the devices more resistant to electrical interference. MEMS microphones can be mounted directly on PCBs and offer low output impedance.



Conclusion: ECMs are ideal for classic audio recording with variable polar patterns and mounting options, while MEMS microphones are particularly suitable for portable technologies due to their compactness and robustness. Both microphone types have their place in modern audio technology and offer solutions for different requirements.

ADDITIONAL FACTS

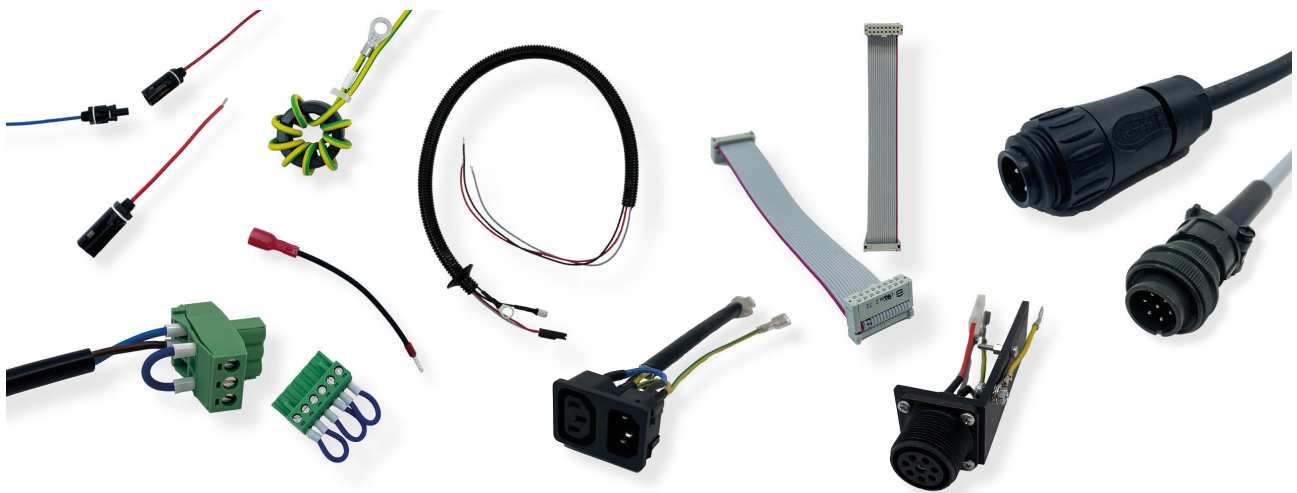
- Omnidirectional: microphones pick up sound evenly from all directions
- Unidirectional: microphones pick up sound coming directly from the front, sound from the other directions is largely blocked out
- Bidirectional: microphones pick up sound from the front and back, while sound from the sides is almost completely blocked out.



NEWS

CUSTOMIZED CABLE ASSEMBLIES

High quality and individual



We distribute customized cable assemblies according to your requirements supplied from modern production facilities.

Thanks to constantly evolving quality processes, we can offer you the best cable assembly for every application at an optimum price-performance ratio.

Your cable assemblies are produced with consistently high quality on modern, efficient and precise fully and semi-automatic machines as well as stop, cutting and assembly devices and are tested before delivery using various testing methods as required.

APPLICATIONS AREAS

- Industrial
- Measurement and controlling
- Medical
- Automation
- Robotics

VERSIONS	PROCESSING TECHNOLOGIES	TESTING METHODS
Single wires	Crimping technology	Checking the correct position
Flat cable	Soldering technology	Short-circuit testing
Coaxial cable	Ultrasonic welding	Length inspection
Cable harnesses	Potting technology	Micrograph inspection
Multicore cables (shielded and unshielded)	Hotmelt	Pull-off force measurement
	Press connection	Crimping force monitoring
	Assembly of components	
	Automatic belt hashing	






ABC-ATEC ENHANCED THE LINEUP OF SMD COMMON MODE CHOKES

A **Common Mode Choke (CMC)** is an essential component in electrical and electronic circuits, specifically designed to suppress electromagnetic interference (EMI) and enhance signal integrity. These versatile components are widely used in power supplies, communication devices, and other high-frequency applications.

ABC's Common Mode Choke ASF & MSF Series consist of a ferrite drum core wound with copper wire, produced on automated winding machines, which keep production stability and maintain coil flatness during production. Partition design of the magnetic core, bifilar winding and wire partitioning technique are also introduced to achieve optimal electrical performance.

The new series come in two available sizes as 3.40 x 2.50 x 2.40mm as well as 4.50 x 3.20 x 3.00mm and are AEC-Q200 compliant.

Series	Dimension (mm)	Inductance (µH)	RDC max. (Ω)	IDC max. (A)	Common Mode Impedance (kΩ @10MHz)	Operating Temp.	AEC-Q200 Grade
MSF3425-E	3.40 x 2.50 x 2.40	51 - 100	1.1 - 3.0	0.4 - 0.2	2.8 - 5.5 (min.) 1.4 - 2.0 (typ.)	-55°C -+155°C	Grade 0
MSF3425-D		51 - 130	1.2 - 3.5	0.6 - 0.3	1.25 - 3.0 (min.) 2.5 - 6.1 (typ.)	-40°C -+125°C	Grade 1
MSF3425-B		200	5.5	0.25	4.0 (min.) 8.5 (typ.)	-40°C -+125°C	Grade 1
MSF4532-H	4.50 x 3.20 x 3.00	51 - 100	0.55 - 1.0	0.5 - 0.4	1.3 - 2.5 (min.) 2.6 - 5.0 (typ.)	-40°C -+125°C	Grade 1
ASF4532-E		200	0.45	0.11	4.5 (min.) 10 (typ.)	-40°C -+125°C	Grade 1
ASF4532-C		11 - 100	0.5 - 1.5	0.36 - 0.2	0.3 - 3.0 (min.) 0.6 - 7.5 (typ.)	-55°C -+155°C	Grade 0

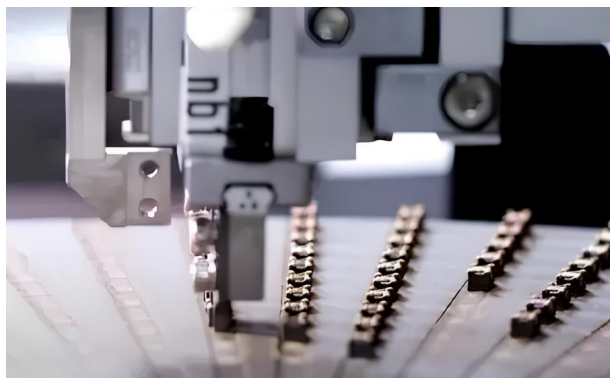
Dimension(mm)	Ethernet	CAN-BUS	CAN-FD	100Base-T1	PoC	Mobile Phone Car Infotainment
3.40 x 2.50 x 2.40	MSF3425-E 		MSF3425-D <small>(2024 New)</small> 	MSF3425-B <small>(2024 New)</small> 	MSF3425-S* <small>(2025 New)</small> 	MSF3425-F* <small>(2025 New)</small> 
4.50 x 3.20 x 3.00	ASF4532-E 	ASF4532-C 	MSF4532-H* <small>(2025 New)</small> 			ASF4532-F* <small>(2025 New)</small> 

*Roadmap under development

NEWS

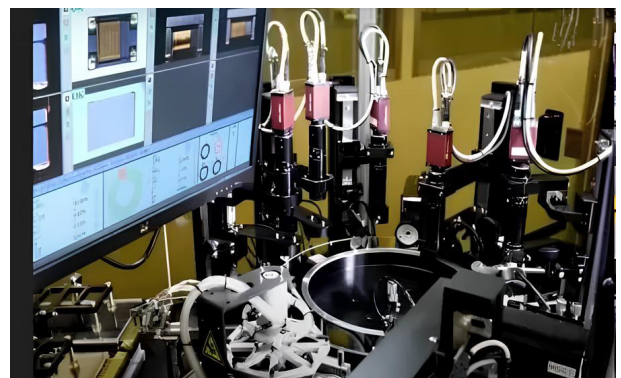
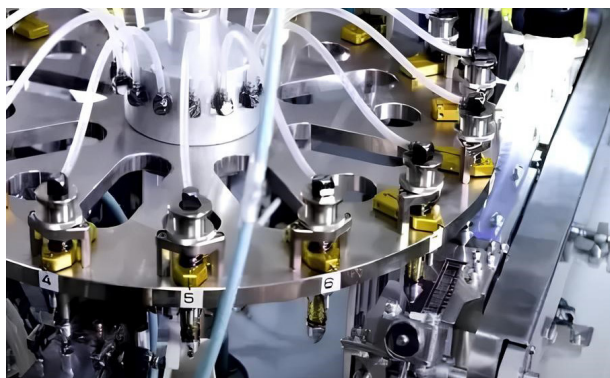
Production Process steps:

The **winding & welding** process is the most important step in the manufacturing of common mode choke because it directly determines inductance value by the number and the spacing between the turns of the winding around the core. ABC utilizes automatic winding equipment with different methods to meet the relevant characteristics of each product. Using digital tension control and monitoring of spot welding temperature guarantees the stability of the products' quality and efficiency.



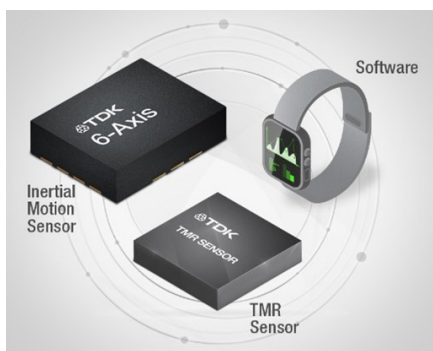
The **assembling** process is to combine the wound coil and housing into a finished common mode choke. The automated assembling process prepares the core with windings from step 1, then applies glue to attach the housing. A camera is used to control the gluing position and area. After assembling the products are cured with high temperature to harden the adhesives and form a strong bond strength.

Automated Optical Inspection (AOI) is used for IQC and FQC. ABC uses cameras and sophisticated imaging software to inspect all products, ensuring the products quality. Check items are bonding quality and appearance check for gaps, voids, misalignments, non-conforming dimensions, cracks and / or breakage of products



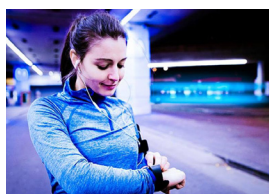
Testing and Packing are the final stages for ensuring all common mode chokes meet quality standards and are ready for shipment. Products are first marked by laser, and then the electrical characteristics are 100% tested, including RDC, L and SDS value with data collection. Finally the production are packaged into carrier tape.

NEW TDK 9-AXIS POSITIONSENSE™ SOLUTION FOR PRECISE ORIENTATION AND RELATIVE POSITION DETECTION



The newest TDK sensor solution for precise orientation and relative position detection, PositionSense integrates TDK's lowest-power 6-axis IMU and TMR-based 3-axis magnetometer with on-chip sensor fusion software and calibration software to enable fast and accurate orientation tracking. PositionSense integrates seamlessly with TDK's industry-leading PDR (pedestrian dead reckoning) software for accuracy and power consumption, enabling applications such as geofencing and GNSS (global navigation satellite system) duty cycling.

The new TDK 9-axis solution provides a best-in-class, compass solution and fully synchronized IMU capable of high accuracy and ultra-low power, making it ideal for geolocalisation, fitness and health applications. The TDK 9-axis (3-Axis accelerometer, 3-Axis magnetometer and 3-Axis gyroscope) enhances personal safety with reliable tracking in emergency situations, ensuring help can reach you promptly even in challenging environments.



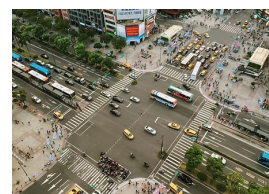
Wearables



Robotics



AR/VR



Navigation



Contact for information: Mr. Kamwa · phone: +49 7452 6007-6637 · e-mail: b.kamwa@endrich.com

HEADQUARTERS

endrich Bauelemente Vertriebs GmbH
P.O.Box 1251 · 72192 Nagold,
Germany
T +49 7452 6007-0
E endrichnews@endrich.com
www.endrich.com

SALES OFFICES IN EUROPE

France
Paris:
T +33 1 86653215
france@endrich.com
Lyon:
T +33 1 86653215
france2@endrich.com

Spain
Barcelona:
+34 93 2173144
spain@endrich.com
Hungary
Budapest:
T +36 1 2974191
hungary@endrich.com

Austria & Slovenia
Gmunden:
+43 1 6652525
austria@endrich.com

Switzerland – Novitronic
Zurich:
T +41 44 30691-91
info@novitronic.ch

Publisher: endrich Bauelemente Vertriebs GmbH, Hauptstr. 56, 72202 Nagold, Germany, Tel: +49 7452 6007 0, Fax: +49 7452 6007 70, Mail: endrich@endrich.com, Web: www.endrich.com, Managing Director: Dr. Christiane Endrich, Registered office: Nagold, HRB Stuttgart 340213, VAT identification number: DE144367280, Concept: endrich Bauelemente Vertriebs GmbH, Reprints, including extracts, only with the written permission of endrich Bauelemente Vertriebs GmbH. All information and details in this brochure have been compiled to the best of our knowledge and belief, but without guarantee. Subject to price changes, errors, typesetting and printing errors. Status 05.10.2023

If you no longer wish to receive endrich news by mail, please send an e-mail to newsletter@endrich.com

Certified acc. to ISO 9001:2015 / 14001:2015