endrichnews

INVITATION TO EMBEDDED WORLD 2022 - FINALLY LIVE AGAIN IN NUREMBERG

embeddedworld 2022
Exhibition&Conference
... it's a smarter world

Visit us from June 21 - 23, 2022 at embedded world Exhibition & Conference, the world's leading trade fair for embedded systems, in Nuremberg: Booth 1-460 in hall 1

Our IoT product highlights

At Endrich, as your electronics design-in distributor, we can understand your application holistically through our technical expertise and broad product portfolio. This enables a make-or-buy decision for you to shorten your development times.

We invite you to visit our stand at embedded world again this year, where everything revolves around the topic of IoT. Our main topics are "Intelligent Connected Sensors", "Data Visualization Gateway" and "Endrich Cloud Services". We will be presenting our latest products in these areas.

In the area of **Intelligent Connected Sensors**, we will be showing live demos of how the latest LPWA technology can be used to connect sensors to the IoT. Cat-NB1, Cat-NB2, Cat-M1 and Cat-M2, but also with Bluetooth BT5.1, data can be transmitted quickly and securely to the cloud.

The very high-performance Core i5 Touch PCs, i.MX8 embedded boards, the whitest and fastest e-paper displays are only a small selection of products in the **Data Visualisation Gateway** area.

With the **Endrich Cloud Services**, Endrich provides the embedded developer with a multi-layer cloud-based solution from infrastructure (IaaS) via platform (PaaS) to software service (SaaS).

We will be happy to provide you with a free ticket for your visit to the fair. Simply redeem your personal voucher code **ew22466856** under the following link: embedded-world.de/voucher

We take time for your individual needs! Therefore, let us arrange an appointment in advance. You can reach us at: embedded@endrich.com

We look forward to your visit!
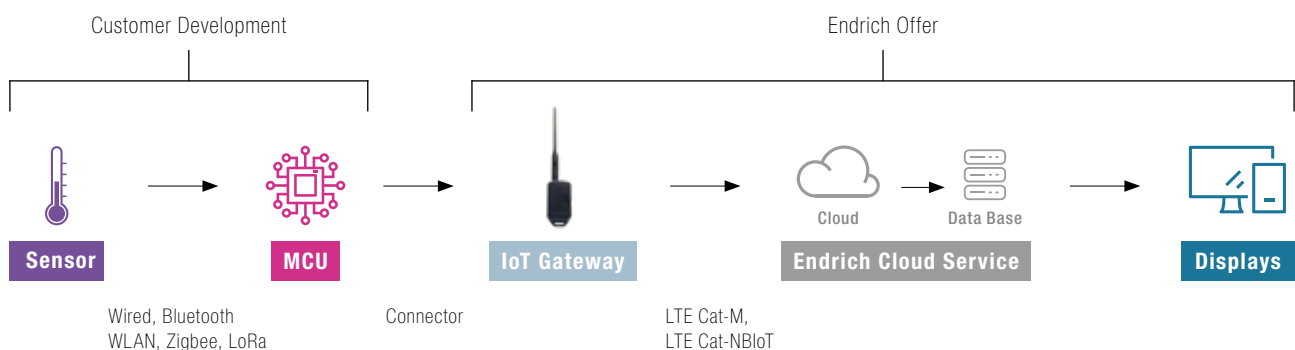Your Endrich Team

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3BIG-MOD – 3 BAND LPWAN MODEM

3BIG-MOD is a certified cellular LPWAN Modem to transfer data (e.g. sensor, production data) via LTE Cat-M1, LTE Cat-NB1/NB2 and EGPRS network. The 3BIG-MOD is a suitable product to realise IoT developments or upgrade existing products with cellular IoT technology. The data can be sent with standard protocols to be managed and displayed. Already certified, no RF knowledge is needed and a short time-to-market can be realized.

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APPLICATIONS

- Smart city
- Smart building
- Factory automation
- Energy management

Customer Development   Endrich Offer

Sensor	MCU	IoT Gateway	Endrich Cloud Service	Displays
Wired, Bluetooth WLAN, Zigbee, LoRa	Connector	LTE Cat-M, LTE Cat-NBIoT	Cloud Data Base	

3BIG-MOD – 3 BAND LPWAN MODEM

ONLY AT ENDRICH!

FEATURES

- LTE CAT-M1 / CAT-NB2
- 2G/ EGPRS fallback
- Optional GNSS
- UART interface
- Integration support
- Supported protocol stacks:
  PPP / TCP / UDP / SSL / TLS
  / FTP(S) / HTTP(S) / MQTT /
  CoAP / LWM2M

- Tasks
  - Sensor to cloud connection
  - Predictive maintenance
  - Data-logging
  - Tracking
  - Machine-to-machine
    communication
  - Device management and
    controlling

To easily integrate the 3BIG-MOD into new or existing designs, Endrich provides support for product selection, design and ramp up. Using standard AT-commands, the IoT communication via cellular network, the upgrade to existing microcontroller platforms can be smoothly realized. From sampling to evaluation including hardware and software support, our IoT competence team provides the documentation and – if needed – example python scripts and C-code.

ENDRICH IOT ECOSYSTEM – FOR SMART AND CONNECTED APPLICATIONS

One concept to cover the basics of IoT. Not a dream but a real platform developed by Endrich to contribute to a smart and connected world. The Endrich IoT platform concept combines sensors, intelligence, wireless technology and cloud connection with open source support.

The heart of the Endrich IoT concept is our self-developed base board called Endrich IoT board v52. The board is equipped with various sensors, a RISV-V architecture microcontroller, LTE-M/NB-IoT technology and multiple options to control and drive a wide range of applications. Via I²C, SPI & GPIO and UART can be used to directly communicate with the Endrich IoT board to send or receive the sensor data (from ALS-, Hall-, temperature-, air pressure-, vibration sensor or MEMS microphone). Since most applications communicate wirelessly, a LTE-M/NB-IoT modem with antenna is integrated. Thus the data can be connected to the cloud with standard protocols like MQTT/CoAP/LWM2M PPP/TCP/UDP/HTTP(S) and more.

For evaluation purposes we established our Endrich Cloud Database to easily visualize data. The UDP cloud data are shown in a messaging log as well as in a customized visualization tool. The cloud database can be used freely for testing purposes during the development with our IoT products. With external partners, it is planned to extend the offer and provide different cloud databases for example MQTT based with different visualization options. Even bigger cloud systems like Azure or AWS are supported to integrate our IoT solutions into existing platforms. The best way to learn about our partners is the direct contact with our sales and the Endrich team.
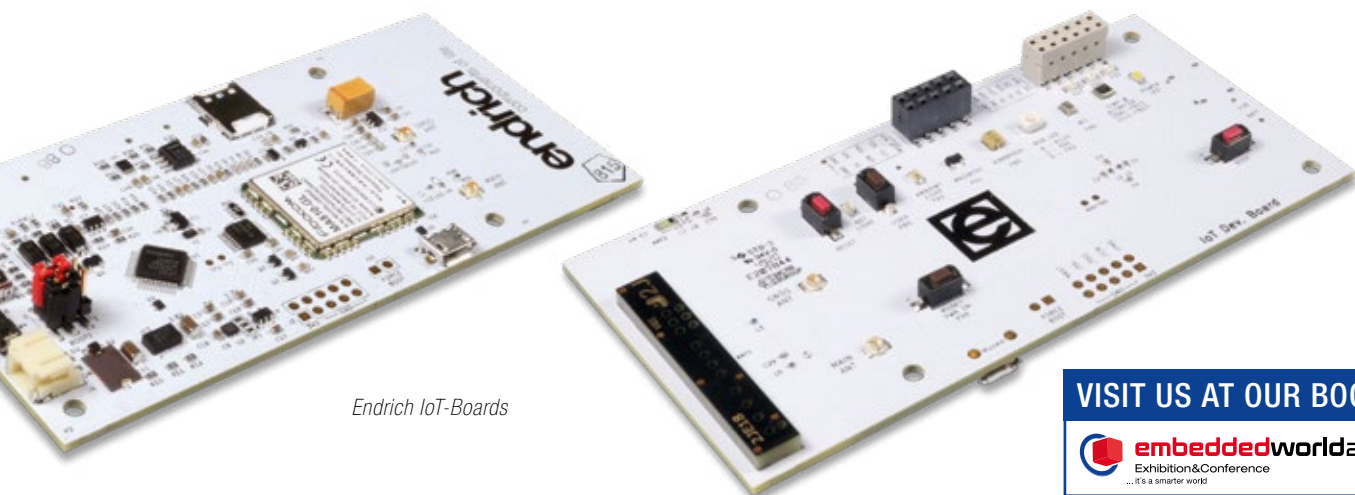
Endrich IoT-Boards

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At the current stage, the website shows the basic concept of our Endrich IoT platform in combination with the Endrich Cloud Database. Also, the user manual is implemented with detailed descriptions on hardware and software development as well as information on the products used on the IoT board. The website is always in progress and to be extended with more information. More materials like photos and videos are already accessible.

All information are available for free on our IoT Website: https://e-iot.info/

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ENDRICH IOT ECOSYSTEM – FOR SMART AND CONNECTED APPLICATIONS

DATA VISUALIZATION

VIBRATION

Vibration sensor VS1/2

Detecting vibration: Signaling of machines' running, detecting of motor start, monitoring motor run, rain, intrusion & anti vandalism detection

ALTITUDE / AIR PRESSURE

Air pressure sensor for altitude measuring

Detecting altitude by measuring air pressure

FAN SPEED MEASUREMENT

Tacho signal detection – measuring RPM

Measuring rotation speed with 4 wire cooling fan

INTENSITY OF AMBIENT LIGHT

ALS sensor detecting in the sensitivity area (spectrum) of human eye

Detecting light and dark condition, measuring visible light intensity

GPS COORDINATES

GNSS coordinates (localization)

Providing device's physical location – device tracking

TEMPERATURE SENSOR

Ambient and forced temperature measurement

Different sensors for ambient temperature and forced temperature

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Customized solutions as well as universal adapter boards are possible with our R&D team located in Hungary. Adapter boards may be just a short extension for a battery pack but can also be external boards with different sensors to easily receive sensor data from sensors which are not on the Endrich IoT baseboard. A customization can be similar – just based on different designs. Especially for companies with limited time or knowledge about wireless protocols or IoT integration, this option provides a unique position for a distributor like Endrich in the market.

More information about our IoT concept and different products will be shared in the future. For direct contact or discussions how to make your product smart and connected feel free to contact Endrich at any time. All information are available for free on our IoT Website: https://e-iot.info/

30 KW TVS COMPONENTS IN COMPACT DFN-2 PACKAGE

SMxKWE package
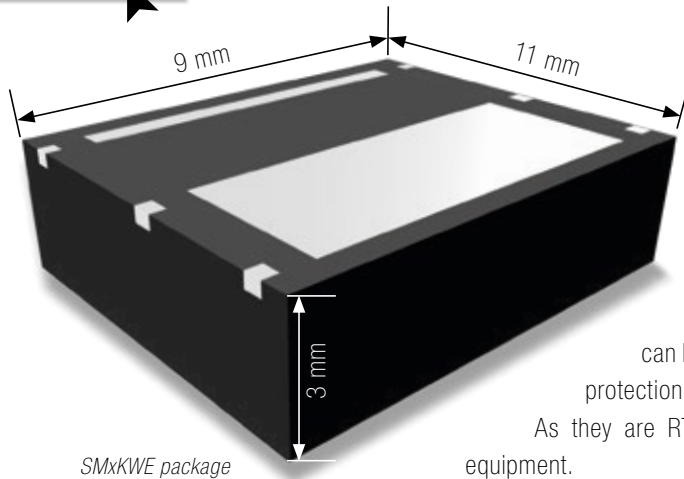
The SM30KWExxA/CA series are high-powered surface mount transient voltage suppression components designed to protect equipment and systems from the damaging effects of high voltage spikes. The surface mount package configuration provides a lower profile compared to legacy axial lead package configurations. These devices provide 30 kilowatts of peak pulse power dissipation for an 10/1000 µs waveform. Due to the compact DFN-2 package, with a size of 11 x 9 x 3 mm they can be used in space saving devices. Applications include AC and DC power line protection, terrestrial base station protection as well as module lightning protection. As they are RTCA DO-160G compliant, they can be ideally used to protect airborne equipment.

PART NUMBER	STAND-OFF VOLTAGE V_{WM}	BREAKDOWN VOLTAGE $V_{(BR)}$	LEAKAGE CURRENT I_D	CLAMPING VOLTAGE V_C @ I_{PP}
SM30KWE16A	16.0	19.5	100	26.0 V @ 1150 A
SM30KWE20A	22.2	24.5	15	34.3 V @ 874 A
SM30KWE24A	26.7	29.5	15	40.7 V @ 738 A
SM30KWE28A	31.1	34.4	15	47.5 V @ 632 A
SM30KWE30A	30.0	33.3	10	50.7 V @ 592 A
SM30KWE33A	36.8	40.4	10	54.8 V @ 548 A
SM30KWE36A	40.0	44.2	10	59.7 V @ 502 A
SM30KWE48A	48.0	53.3	10	73.2 V @ 410 A
SM30KWE54A	60.0	66.3	10	87.1 V @ 344 A
SM30KWE70A	77.8	86.0	10	114.0 V @ 264 A
SM30KWE75A	83.3	92.1	10	122.0 V @ 246 A
SM30KWE78A	86.7	95.8	5	126.0 V @ 238 A
SM30KWE110A	122.0	135.0	5	178.0 V @ 168 A
SM30KWE120A	133.0	147.0	5	193.0 V @ 156 A
SM30KWE180A	200.0	220.0	5	291.0 V @ 104 A
SM30KWE200A	222.0	244.2	5	320.0 V @ 94 A
SM30KWE220A	245.0	269.5	5	356.0 V @ 84 A

FEATURES

- RTCA DO-160G compliant product
- Waveforms (Pin injection) 3 and 4 – level 5; waveform 5A – level 4
- Low clamping voltage
- 30 kilowatts peak pulse power per line (tp = 10/1000 µs)
- Unidirectional & bidirectional configurations
- Easy mounting to printed circuit board
- Available in multiple voltages
- RoHS & REACH compliant

APPLICATIONS

- Relay drives
- Motor (start/stop) back EMF protection
- Module lightning protection
- Secondary lightning protection for AC/DC

RTK-1612- DG, RTK-1722-DG, RTK-1722-T GNSS MODULES

Taiwan LOCOSYS, as a global leading satellite positioning module designer and manufacturer, has been launching the smallest RTK module (RTK-1010) and arousing global customers' strong attention since March 2021.
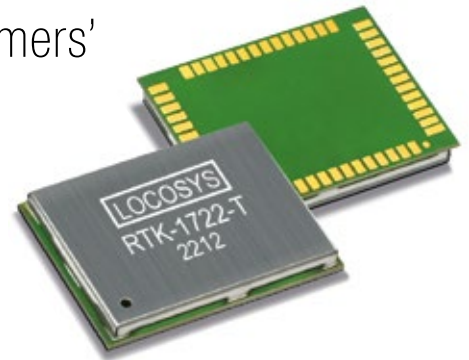
The RTK-1010 then successfully obtains official evaluation report from Taiwan government. In 2022, LOCOSYS are continuously devoting themselves to developing and expanding RTK-related applications, especially targeting in 5G IoT and VX2 market, for offering customers multiple solutions promptly, including their high cost-effective RTK modules: RTK-1722-T, RTK-1612-DG, and RTK-1722-DG.

According to the 5G ITU-T G.8273.2 standard of Transport Application Specification, the standards of class D phase/time should be in accordance with ± 5 ns accuracy. Outstandingly, the PPS timing accuracy of RTK-1722-T has already realized ± 2 ns, which is much more precise than the standards. Besides, according to the research report of IHS Markit, the global business data consulting services, it pointed out that 5G-related applications will create 13 trillion output value and will continue increasing afterwards. With the continuous increase of data transfer rate, the infrastructure equipments (e.g. 5G Telecom providers, routers, switches, micro base stations, and so on) need higher and higher accuracy of time synchronization. Not only does the specification of RTK-1722-T stay ahead of our international competitors, but also its competitive unit price is affordable for our global customers. RTK-1722-T will definitely help the customer shorten the design and development cycles of the whole project and accelerating time-to-market.

RTK-1722-T Block Diagram

FEATURES

- Dual-band, multi-frequency and with maximum fixed update rate up to 10 Hz
- Capable of SBAS (WAAS, EGNOS, MSAS, GAGAN)
- GNSS based timing solution for O-RAN (Open Radio Access Network)
- Low power consumption
- Fast TTFF at low signal level
- RTCM ready (RTCM v2.3 and v3.3)
- SMD type; RoHS compliant
- IATF 16949 quality control
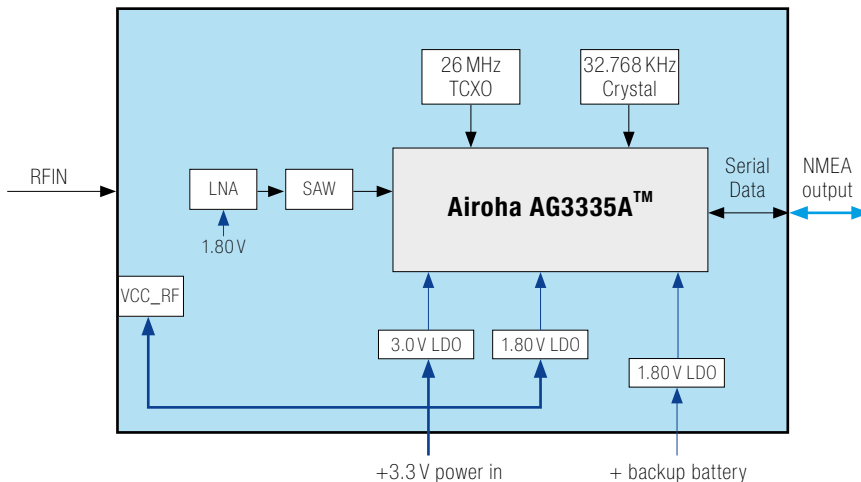
APPLICATIONS (RTK-1722-T)

- Suitable of the 5G Telecom providers, routers, switches, micro base stations
- With the ± 2 ns PPS timing accuracy
- Conforming for 5G ITU-T G.8273.2 standard of transport application specification (class D phase/time: ± 2 ns)

LOCOSYS

RTK-1612- DG, RTK-1722-DG, RTK-1722-T GNSS MODULES

Because of the ADAS (advanced driver assistance system) and autonomous driving market continue to accelerate their evolution, both LOCOSYS RTK-1612-DG and RTK-1722-DG modules can meet the application requirements of autonomous driving. The two modules have L1+L5 multi-frequency high-precision ADR/ UDR inertial navigation. They can allow mobile vehicles to maintain the centimeter-level positioning accuracy. When the satellite signal is disconnected, the driving route can be still maintained. The modules, which integrate high-precision and 6-axis-sensor dynamic algorithm, have the ability to learn intelligently in order to suit for various vehicle environments and to output the dynamic attitude and angle of the car. RTK-1612-DG and RTK-1722-DG improve several times of performance than general GPS positioning solutions do, including: centimeter-level positioning accuracy, 100 Mhz high update rate, ADR/UDR automatic switching, low latency and anti-interference, and other advantages. These modules are the best choices to customers in using self-driving and unmanned applications.

FEATURES

- Dual-frequency and multi-constellation RTK positioning solution
- Support GPS, GLONASS, GALILEO, BEIDOU and QZSS
- Capable of SBAS (WAAS, EGNOS, MSAS, GAGAN)
- Support 135-channel GNSS
- Low power consumption
- Fast TTFF at low signal level
- Up to 10 Hz update rate
- Small form factor
  16 x 12.2 x 2.4 mm
- SMD type with stamp holes; RoHS compliant
- IATF 16949 quality control

APPLICATIONS (RTK-1612-DG & RTK-1722-DG)

- ADAS (advanced driver assistance system) and autonomous driving market
- L1+L5 multi-frequency high-precision
- ADR/ UDR inertial navigation
- High-precision and 6-axis-sensor dynamic algorithm
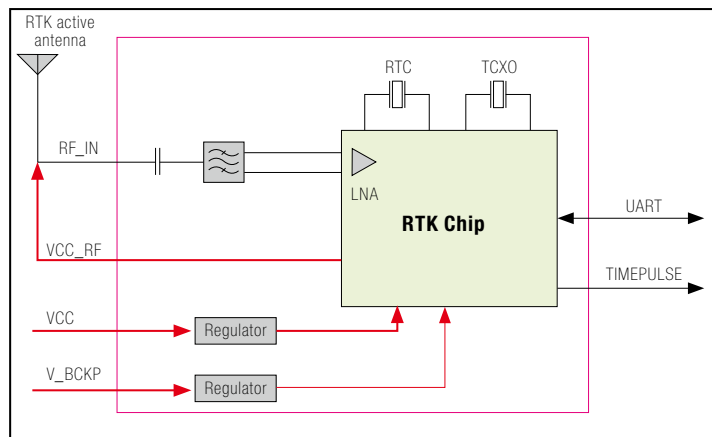
System Block Diagram

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