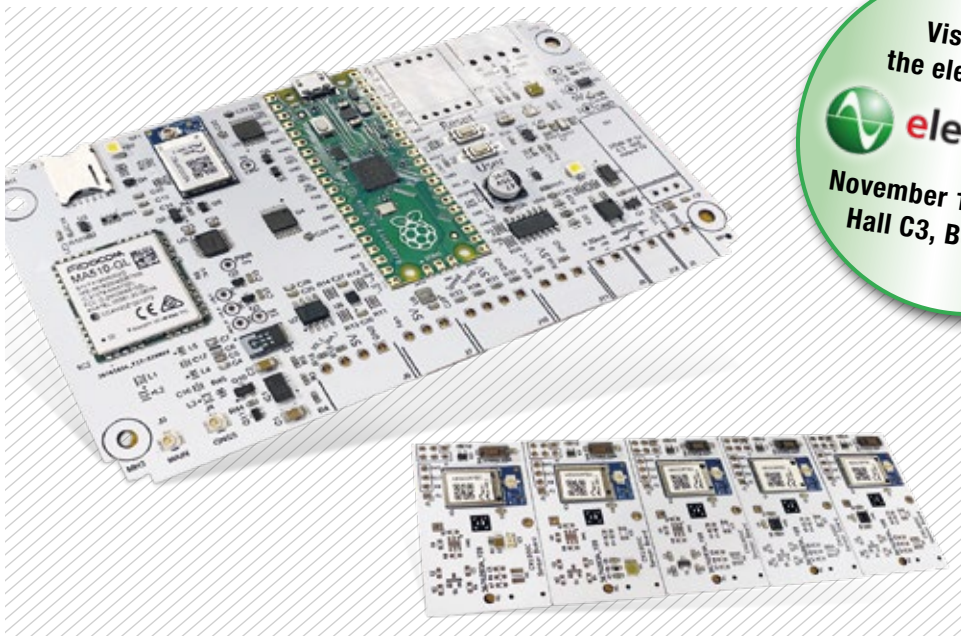


# endrichnews

www.endrich.com

## OUR PRODUCT OF THE MONTH:

THE E-IOT SMARTBOARD – THE FIRST WLAN-LPWA GATEWAY OF THE E-IOT HARDWARE FAMILY



The endrich SMART-BOARD is the new generation of E-IoT boards, solving many problems of wired sensor data transfer. A forward-looking technological update we developed based on the E-IOT concept and our first user experiences.

Equipped with LTE-M/NB-IoT, same as our E-IoT single board computer, and now additionally an 868 MHz Module – to create an own Wireless Local Area Network (WLAN). Basically no effort has to be done to deploy the 868 MHz Mesh Network and operate a wireless, cheap and long life sensor network with cloud access.

The advantage of this point-to-point data transfer is that a battery-powered, inexpensive factory preconfigured communication device is able to do its job independently from the existing network of the enterprise. There is no need to connect a device into a corporate WiFi network, we do not compromise its security and the installation costs and operating costs remain low.

*Read more on page 2.*



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## **THE E-IOT SMARTBOARD – THE FIRST WLAN-LPWA GATEWAY OF THE E-IOT HARDWARE FAMILY**

endrich's brand new SmartBoard device, which will be presented at SIDO in Paris and Electronica 2022 in Munich.

When there is a need of placing several sensors in a defined area, it is often too expensive to maintain a cellular LPWA (NB-IOT / LTE-M) connection and a local sensor network with a single point of gateway to the Internet is a better choice. In industrial machine rooms, it is much more beneficial to choose a low-consumption wireless technology operating in the sub-gigahertz ISM band compared to wired sensor networks. In this environment ZigBee, Bluetooth or WiFi technologies are limited in signal propagation through walls or other objects. The sub-gigahertz network provides good indoor penetration, does not require a license and expensive installation therefore low cost.

Our choice was NeoCortec's MESH technology, as the company offers a professional, agile, scalable and extremely low-power wireless connection solution with very few restrictions and places great emphasis on user-friendliness and short time-to-market. The patented NeoCortec mesh features a series of new solutions to manage power consumption minimization, scalability and data security to build-up autonomous intelligent network nodes.

The proprietary routing mechanism ensures smooth data transmission over the network and eliminates performance-degrading factors such as obstacles in the RF path, node blocking or movement within the network. The size of the NeoCortec modem can be easily integrated with our external sensor cards we are going to release later and the mainboard that functions as a gateway (E-IoT SBC). The need arose for the development of an integrated gateway device that combines all the above functions, i.e. it can receive signals from both wired and wireless smart sensors, it can send them to a cloud-based database on the NB-IOT/LTE-M GSM network. Recently we set-up four devices with different environmental sensors in our headquarter in Nagold for field testing and we are proud to present our Endrich SMART-BOARD on the upcoming exhibitions.

**E-IoT local mesh network  
with LPWA gateway**

**NEOMESH LAN**

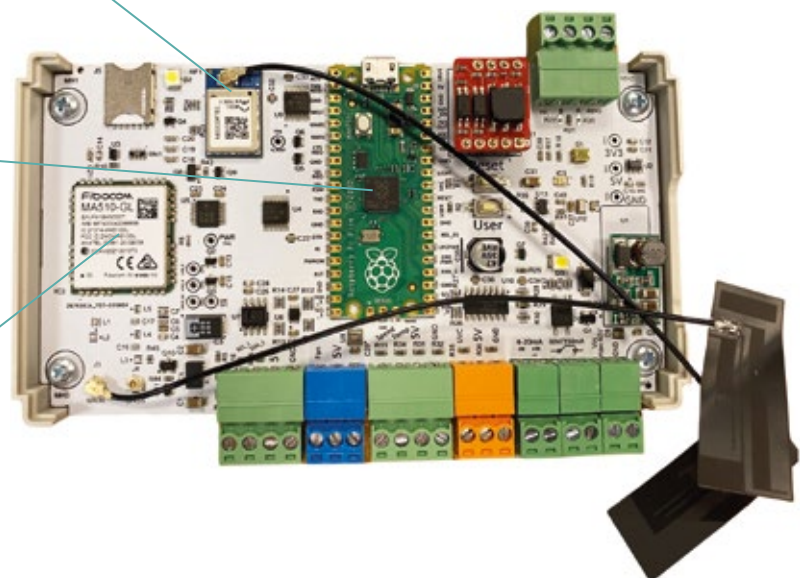
WLAN modem operating on  
the 868 MHz ISM band

**MICROCONTROLLER**

Raspberry Pi Pico based solution

**FIBOCOM MA510 3 BAND GSM MODEM**

Cat-NB2, CAT-M, GPRS modem





## PANASONIC PAN1782 – THE MIDDLE CLASS BLUETOOTH LOW ENERGY MODULE

**HAVE A  
LOOK**

The PAN1782 is a Bluetooth® 5.1 Low Energy Module based on the Nordic nRF52833 single-chip controller for data rates up to 2Mbps using the high-speed LE 2M PHY.



*The Bluetooth® 5.1 Low Energy Modul from Panasonic*

Furthermore, the new LE advertising extensions allow for much larger amounts of data to be broadcasted in connectionless scenarios.

With the ARM® Cortex®-M4 processor, 128 kB RAM, and the built-in 512 kB flash memory, the PAN1782 can easily be used in standalone mode, thereby eliminating the need for an external processor, saving complexity, space, and cost.

The PAN1782 supports angle of arrival (AOA) and angle of departure (AOD) direction finding using Bluetooth. Furthermore, the new LE advertising extensions allow for much larger amounts of data to be broadcasted in connectionless scenarios. As additional feature, the PAN1782 also supports Type 2 Near Field Communication (NFC-A) for use in simplified pairing and payment solutions (external antenna required).

### APPLICATIONS

- Smart Home
- Building Automation
- Smart Factory
- Energy Management
- Medical
- Safety & Security

Series	PAN1782
Part number	ENW89858A1KF
RF category	Bluetooth® 5.x, IEEE® 802.15.4
Software & drivers	nRF5 SDK by Nordic Connect SDK
IC	nRF52833
Size [mm]	15.6 x 8.7 x 2.0
RX sensitivity [dBm]	-96 @ 1 Mb/s -103 @ 125 kb/s
Tx power (max) [dBm]	+8
Power supply [V]	1.7 to 5.5
Current consumption	Tx: 4.9 mA @ 0 dBm Rx: 4.7 mA
Sleep mode current	Wake-on-RTC: 1.5 µA Off Mode: 0.6 µA
Interfaces	GPIO, UART, QSPI, I2C, I2S, ADC, PDM, PWM, COMP, USB2.0
MCU and memory	ARM® Cortex®-M4 128 kB RAM, 512 kB Flash
Operating temp.	-40 to +85 °C

### FEATURES

- Surface mount type dimensions: 15.6 mm × 8.7 mm × 2 mm
- Pin compatible hardware drop-in replacement for PAN1026A, PAN1762 and PAN1781
- Nordic nRF52833 featuring ARM Cortex-M4 running with 64 MHz
- Bluetooth 5.1 LE including LE 2M and LE coded PHY
- Embedded 512 kB flash memory and 128 kB internal RAM
- 128-bit AES/ECB/CCM/AAR co-processor
- Up to 16 General Purpose I/O's (GPIO), which are shared with up to 4 × SPI, 2 × I<sup>2</sup>C, 2 × UART, 8CH ADC, COMP, QDEC, NFC-A, 4 × PWM, nRESET. Usage is limited by number of available GPIO ports.
- USB 2.0 full-speed device interface
- Built-in temperature sensor

## ACOUSTIC COMPONENTS FOR CARAVANING

The strong increase in demand in these years for recreational vehicles such as caravans and mobile homes has led to a boom in this industry.

It is state-of-the-art and meets the consumer's need for comfort that nowadays the technical equipment does not have to be inferior to that at home. The diverse technical equipment such as heating/air conditioning, refrigerator, stove, solar system, timers, sensors, audio, TV, Internet, etc. require simple operation with haptic or acoustic feedback or acoustic alarms or speech and music transmission. We have the right components for it.



Loudspeaker / Sounder



Microphone



Vibrationsmotor

- Loudspeakers for relaxing feeling like our full range loudspeaker 32KUG08XNT - W with a wide, flat and balanced frequency response  
 ⇒ Suitable for application with high quality reproduction of speech, melodies and acoustic signals
- Sounders for security, like our CPA26D12 - 3.2R with a strong and stable construction combined with good volume  
 ⇒ Suitable for applications with high reliability like security alarm or acoustic feedbacks
- Microphones for a smart home feeling to detect different sounds, like our F1 - (A)MOE - N090R38 - 3P  
 ⇒ Suitable for communication applications
- Vibrationsmotors haptic feedback, like our SMD item BLT - 3211H.  
 ⇒ Suitable for controlling application within the caravanning

### FEATURES

- Full range loudspeaker with a wide, flat and balanced frequency response
- Superior reliability for high temperature
- Excellent signal to noise ratio
- Significant RF noise reduction
- High sensitivity & extremely low distortion at high input level maintain high SNR and low distortion after signal processing
- Smaller size with higher power and high sensitivity
- Customized sound box on request
- Wide range of sizes available

### APPLICATIONS

- Air conditioning
- Kettle
- Coffee machine
- Microwave
- Lighting
- Fridge / Freezer
- Alarm system
- Gas detector
- Smoke detector
- Control panel with display



## HIGH-END INDUSTRIAL TOUCH MONITORS

The latest industrial touch monitors offer extreme reliability, extended temperature, high brightness, fast response time and state-of-the-art multitouch input.

The new industrial product line of monitors is type-approved fulfilling rough industrial requirements. The monitors are delivered ready for all type of industrial applications, with different mounting solutions available. All monitors are carefully designed for high performance, simplicity, reliability and long life. Interfaces provide support for the latest generation of embedded computers with Display Port or HDMI and USB for the capacitive multitouch interface.

Each monitor product version provides a single connection point for the display. This solution eliminates switching between display inputs and ensures that the displays are fixed on the one available display input. The monitors are 100 % controlled via the display data channel command interface (DDC/CI), giving the application software full control of configuration such as brightness and ECDIS settings. A underglass + and - capacitive button is available to manually control the brightness of the screen.

The monitors have a unibody aluminium frame which protects the screens and provides an elegant modern look to the monitors. The flat backside of the panel makes it easy to install the monitor in many different consoles with multiple mounting brackets.



The IPS screens have excellent colors and ultra-wide viewing angles and are equipped with a 1000 cd/m<sup>2</sup> high brightness backlight. All monitors have cover lenses with 1.8mm chemically strengthened low reflection glass that provides solid protection for the monitors.

Optionally state-of-the-art multitouch panels with Adaptive Sensing technology, that provides highly resistance to moisture, are available. Differential touch sensing technology by Microchip<sup>®</sup> delivers unparalleled noise immunity ensuring superior touch performance even in a harsh environment.

### FEATURES

- Sizes available : 18,5", 21,5" and 23,9"
- IPS Display Panel with 1000 cd/m<sup>2</sup> high brightness backlight
- 1920 x 1080 resolution
- Microchip<sup>®</sup> mXT2952TD Touch Controller
- Chemically hardened 1.8 mm low reflection Cover Glass
- Power input from 18 - 36 Vdc
- Optional optical bonding of Display, Touch Panel

### APPLICATIONS

- Industrial
- IoT
- E-Mobility
- HMI
- Medical
- Transportation
- POS



## SD175RAP-24SHWB (56) (MS)

### High airflow industrial fan for harsh environment conditions



SINWAN FAN MOTOR  
 Model SD175RAP-24SHWB (56) (MS)

SINWAN has supplemented its high air flow and high speed axial fans with additional model series which are available at endrich in short delivery time.

The SD series are available in configurations for 12 V, 24 V and 48 V. Due to its round aluminum housing with 172 mm diameter and protection against dust and water, the fan is particularly suitable for industrial applications such as textile machines, robotics, frequency generators, ....

The fan is characterized by its TÜV, CE and UL certification and its good price-performance ratio. Additionally, the series is available with many customized options, like regulating the voltage range of 15-27V for lower / higher speed or to add additionally FG output and PWM input, special connectors, high temperature ranges, etc..

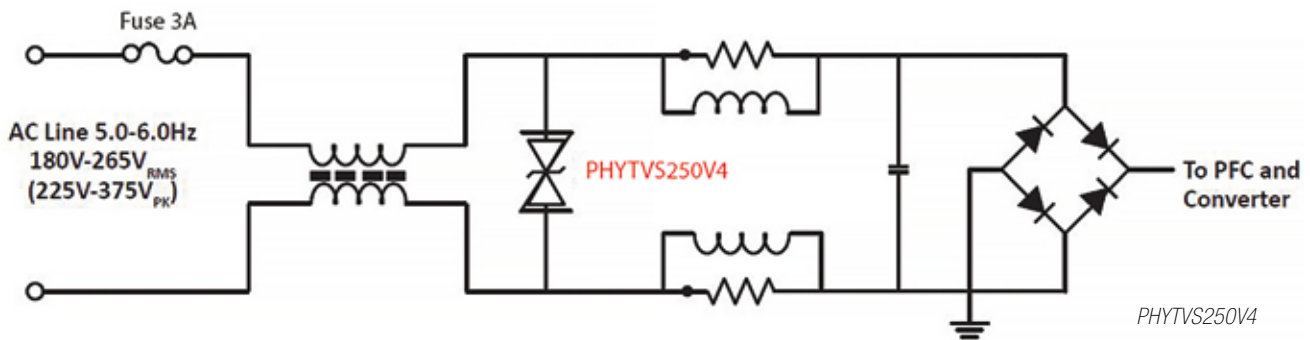
	RATED CURRENT	VOLTAGE RANGE	INPUT POWER	RATED CURRENT	REFERENCE VELOCITY	MAX. AIR FLOW		MAX. STATIC PRESSURE		NOISE LEVEL
						cfm	m <sup>3</sup> /min	Inch /H <sub>2</sub> O	mmAq	
Model number	VDC	VDC	Watt	Ampere	RPM	cfm	m <sup>3</sup> /min	Inch /H <sub>2</sub> O	mmAq	db (A)
SD175RAP-12SH	12	8~13.8	64.8	5.4	4100	315	8.9	1.05	26.67	60
SD175RAP-12HH	12	8~13.8	50.4	4.2	3950	300	8.5	0.97	24.64	57
SD175RAP-12H	12	8~14	23	1.9	3300	230	6.5	0.78	19.81	52
SD175RAP-12M	12	8~14	13.2	1.1	2500	182	5.2	0.52	13.21	41
SD175RAP-12L	12	8~15	5.5	0.45	1800	130	3.7	0.36	9.14	34
SD175RAP-24SH	24	15~27	63.6	2.65	4150	320	9.1	1.05	26.67	60
SD175RAP-24HH	24	15~27	50.4	2.1	3950	300	8.5	0.97	24.64	57
SD175RAP-24H	24	15~27.6	24	0.97	3300	235	6.7	0.78	19.81	52
SD175RAP-24M	24	17~27.6	13	0.52	2500	182	5.2	0.52	13.21	41
SD175RAP-24L	24	17~28	5	0.20	1800	130	5.2	0.36	9.14	34
SD175RAP-48SH	48	22~53	62.4	1.3	4150	320	9.1	1.05	26.67	60
SD175RAP-48HH	48	22~53	49.4	1.03	3950	300	8.5	0.97	24.64	57
SD175RAP-48H	48	22~56	23.5	0.48	3300	230	6.5	0.78	19.81	52
SD175RAP-48M	48	24~61	14.5	0.30	2500	182	5.2	0.52	13.21	41
SD175RAP-48L	48	24~63	5.8	0.12	1800	130	3.7	0.36	9.14	34



## UPGRADED HYBRID SEMICONDUCTOR TO REPLACE METAL OXIDE VARISTORS (MOVS)

HAVE A LOOK

ProTek Devices has introduced an upgrade to his patented series of hybrid semiconductor components for AC power supply circuit protection in consumer and industrial applications like home appliances, industrial equipment automation controls, instrumentation, and SMART meters. The new semiconductor technology is an ideal replacement for surface mount metal oxide varistor (MOV) devices.



The PHYTVSxxxV4 series is designed to protect industrial and consumer applications where a reliable overvoltage solution with lower clamping voltage is required. Compared with a MOV, ProTek Devices' new series of components offer a more robust product in a small form factor.

It does not present a wear-out mechanism common with MOVs. The use of semiconductor technology significantly extends its operation lifetime.

Compared with the PHYTVSxxxV3 series, the new PHYTVSxxxV4 series products offer double surge current handling up to 500A to meet the IEC 61000-4-5 (surge) requirements: L-L class 2, 500Apk, 8/20µs, 1kV with Req=2Ω. The series consists of three devices for typical operating voltage of 125V, 250V, and 277V and is provided in a low profile and space-saving molded DFN-2-KW package. They provide bidirectional operation for 50/60/400Hz AC lines and are RoHS and REACH compliant as usual.

### FEATURES

- Compatible with IEC 61000-4-5 (Surge): L-L Class 2, 550Apk, 8/20µs, 1kV with Req=2Ω
- Bidirectional operation 50/60/400Hz AC lines
- Very low clamping voltage
- Available for SMT Reflow Soldering
- Low profile and space saving package
- Operating temperature -55 to +125°C
- RoHS and REACH compliant

### APPLICATIONS

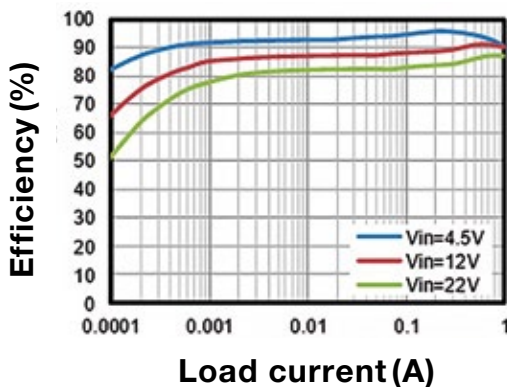
- Power Adapters
- Home Appliances
- Industrial Equipment - Automation Controls
- Instrumentation
- SMART Meters

## MP2322X SYNCHRONOUS, RECTIFIED, STEP-DOWN, SWITCH-MODE CONVERTER

The MP2322 is a synchronous, rectified, step-down, switch-mode converter with built-in internal power MOSFETs and high light-load efficiency.

### Efficiency vs. Output Current

$V_{IN} = 12V$ ,  $V_{OUT} = 3.3V$ ,  $L = 3.3\mu H$ ,  $DCR = 9m\Omega$



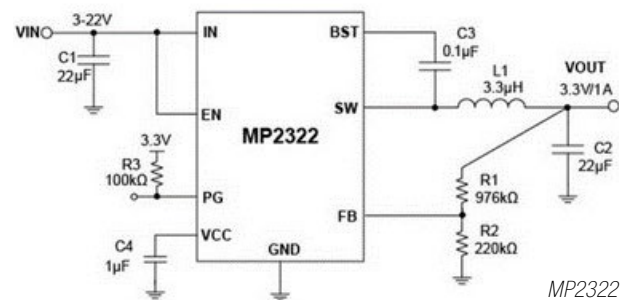
The MP2322 offers a very compact solution that achieves 1A of continuous output current with excellent load and line regulation over a wide input supply range.

The MP2322 switching edge is optimized for EMI reduction. Constant-on-time (COT) control provides seamless mode transition and a fast load transient response. Full protection features include over-current protection (OCP), over-voltage protection (OVP), and thermal shutdown.

The MP2322 requires a minimal number of readily available, standard, external components and is available in a space-saving QFN-8 (1.5 mm x 2 mm) package.

### APPLICATIONS

- IOT
- Home Automation, Home Security
- Single- or Multi-Cell Li-Ion Battery Systems
- Multi-Cell Dry Battery Systems
- 12 V Input Power Rails
- White Goods



MP2322

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