

Squid.link gateways

2nd generation Squid.link Home care · Security · Energy



The gateway for your IoT solution



Modular platform

With the 2nd generation of Squid.link gateways as the heart of your IoT solution, you have a mature, reliable, and secure platform. The gateways are modular, meaning that they can be configured to match your needs.

The Squid.link gateways are open Linux platforms and can handle numerous wireless protocols at the same time. You are no longer dependent on one vendor of IoT devices but can combine your Home Area Network exactly the way you prefer.

Multiple protocols

The gateways support Zigbee 3.0, Z-Wave Plus*, Wireless M-Bus, Bluetooth Low Energy, Bluetooth 5, and WLAN HAN networks. Communication with servers and e.g. smartphones can be established via WLAN, Ethernet (to local modem), or cellular networks.

Flexible solution

The Squid.link gateways include processor power to implement complex local intelligence. The memory options leave room for data storage and logging.

The prices are extremely competitive since you will only pay for your selected modules.

Edge computing

Edge computing is transforming the way IoT data are being handled, processed, and delivered. As the Squid.link gateways enable edge computing, you can benefit from a range of advantages including:

- Improved data security and privacy
- Increased cost-effectiveness
- Enhanced reliability
- Low latency



Numerous opportunities

You can choose the protocols you need for your Home Area Network (HAN) and for your Wide Area Network (WAN). The gateways are configured when they are put into production.

Design options

• Ethernet

Internal

External

WLAN (b/g/n)

Custom module

shared with HAN

Internal + external

You can design the appearance of the Squid.link gateways the way you want it. Choose the color of the top label and add your logo. Define your LEDs, button, and functionalities - and you are ready.

White label possibilities

Get a gateway that fits the visual identity of your business seamlessly by adding your brand to the product. You have the opportunity to customize the packaging, installation manual, and labels. To make your design process as smooth as possible, we provide you with a set of templates and guidelines.

HAN OPTIONS WAN OPTIONS Wide Area Network ome Area Network H options: Zigbee 3.0 Z-Wave Plus* Cellular network (LTE) • Wireless M-Bus Three LTE antenna • Sub 1 GHz proprietary Bluetooth BLE Pro

- WLAN 2.4 GHz
 - Custom module

Fast time to market Scalability Low up-front investment



Configuration options



EXPANSIONS & POWER

Expansion and power supply options:

- Hardware security chips USB port (USB host hidden in compartment
- under enclosure)
- Micro SD card slot
- SIM card slot
- Two antenna connectors · Power supply:
 - External adapter
 - Power over Ethernet (Squid.link 2B only)

DESIGN

ppearance options:

- Label colors
- Label design
- LED colors
- Button in the middle
- Packaging
- Manuals

Expand functionalities

With custom hardware options, you can expand the functionalities of your gateway.

For additional flash memory, you can include an optional Micro SD card.

To optimize the radio reception of the cellular networks you are able to include two sim cards in your gateway.

The gateways can optionally have a battery backup with an exchangable Lithium battery to make sure that your solution will continue working in cases of power cuts.

By including an Apple MFi chip in the gateway, you can certify your solution with Apple. To include this option, the final product must be certified by Apple.

Strengthen the range

Add up to two antennas to strengthen the range of your solution.

For the European markets, the following antenna options are offered:

- Internal antenna
- External antenna connector including:
 - No antenna (blinded)
 - Whip antenna
- External antenna (incl. 2m cable)
- Internal antenna and external antenna connector

For the North American markets, there is the option to include a primary whip antenna and an external diversity antenna. Both antennas are needed for full AT&T compliance.

Hardware security

Security is paramount in the IoT. The Squid.link gateways allow you to add hardware-accelerated encryption and secure authentication. By opting in a hardware chip, you can provide your customers with a secure platform for your IoT solution.

The offered hardware chip supports: AES (up to 256), ECC (up to 521), RSA (up to 4096), 3DES, HASH, MAC, TLS and TPM functions.

2nd generation Squid.link

With the 2nd generation of Squid.link gateways, you can choose between two versions: The basic version, Squid.link 2B, and the extended version, Squid.link 2X.

Squid.link 2B

Squid.link 2B has an ARM9 CPU that allows you to run your solution with high performance. Choose between two memory configurations for the gateway to match the requirements of your solution:

- 128 MB RAM + 256 MB Flash
- 256 MB RAM + 512 MB Flash

The optional 2-4 hour battery backup will ensure that your solution works in the eventuality of power loss.

Reliable



Modular

Squid.link 2X

Squid.link 2X is a highly powerful gateway suitable for large IoT solutions. Its powerful ARM Cortex-A7 1.0 GHz Dual-Core CPU allows you to run complex applications, such as artificial intelligence-based applications, or multiple applications at the same time. Squid.link 2X offers two memory options:

- 512/1024 MB RAM
- 4 GB Flash

Squid.link 2X has an optional 1-3 hour battery back-up, but can last up to 12 hours in low-power mode (wake-on-Zigbee Alarm, Mains ON, or LTE.).

Tamper protection and installation debugging

Enhance the security of your solution with tamper protection. By adding an accelerometer, the gateway can warn you if someone is tampering with it. The accelerometer can also be used to check the orientation of the gateway, e.g. in relation to installation debugging.





Squid.link 2B and 2X





Benefit from the 70+ man-years we have spent on software development and focus on your core competencies when working with our wireless platform. The platform includes the second generation Squid.link and a number of wireless devices tested and validated in large volumes.

Configuration options

The software architecture of the Squid.link gateways offers numerous configuration options, providing you with the opportunity to get a tailored wireless solution. The possibilities include:

IP communication

Depending on your needs, you can choose between using MQTT, Web Services, or a custom IP communication protocol to deliver the data collected by Squid.link to the backend of your solution.

WAN

For the Wide Area Network (WAN), you can choose between several wireless technologies. These include WLAN, cellular networks, and custom wireless technologies. Another option is to establish the WAN connection via an Ethernet cable or a modem (LTE).

Cloud integration

The Squid.link gateways allow integration of 3rd party cloud services. With these services, it is possible to develop applications without having to invest in the underlying and overlying infrastructure. Integration with cloud services ensures the fastest time to market of your solution and offers you the potential of efficiently scaling the solution from ten to millions of devices.

Application

Building your application on top of the open wireless platform enables you to focus on the quality of your software. With the gateway's APIs, application development is greatly simplified.

API

When developing the application for your solution, you can use a high-level or a low-level API. The high-level API, Squid Smart App, allows you to configure your application instead of programming it. If you want to program the application, the low-level API, SmartAMM API, is the ideal choice.

Operating system

The Squid.link gateways consist of a Linux platform, including a long-term Linux kernel and a root file system. The root file system contains a number of standard Linux utilities. The Linux platform is used to make it as convenient as possible for you to include the functionality you want in your solution.





HAN

The multiprotocol Squid.link gateways allow you to integrate devices into your solution across wireless technologies. The Home Area Network (HAN) options offered by the gateway includes Zigbee, BLE, Bluetooth 5, Wireless M-Bus, Z-Wave, and WiFi. Support for custom wireless technologies is also a possibility.

Squid Smart App

With the Squid Smart App, application development is simplified remarkably. Squid Smart App includes a restful API, providing an interface between applications and connected devices. Squid Smart App includes easy-to-read templates with predefined commands for the devices. This means that you will only have to configure settings and actions of the devices through the templates instead of programming these.

SmartAMM API

With the SmartAMM API, the process of programming your application is simplified. The SmartAMM API is a low-level application API, which can be accessed from applications running on Squid.link and from a hosted application running remotely. The remote access runs through a separate channel established between the gateway and the server. For easy access, a server middleware (SmartAMM server) is available through which you can debug the wireless communication with the development tool. 3rd party applications connect to the SmartAMM API via a socket connection. The API supports:

IP settings

- DHCP/fixed IP (IPv4/IPv6)
- MQTT settings
- System events
- MMI events, tamper, mic
- Wireless device access
- Access to ZB, ZW, BLE, and WMB networks

Server settings (URL, port)

- - NTP server
 - DNS server
 - SSH Connect Home





Support forum

In the Support forum, you can find instructions on how to get started with the development process. You get notified about updates via email and can download the updates for the products integrated into your solution in Support forum. With a Support Agreement, you can also get support from our helpdesk by writing us the technical issue you are experiencing. You will get a ticket to the helpdesk, we will record your entry, and you will be kept up to date during the resolution of your technical issue.



Developer Tool

The SmartAMM Developer Tool provides you with a rich set of utilities for interacting with Squid.link and connected devices across wireless technologies. Use the tool for generating, sending, receiving, and interpreting SmartAMM telegrams. The tool interacts with the gateway through a SmartAMM Server, which you are provided with free of charge.

Wireless platform

SmartAMM server

Time sync

- UTC time
- Time zone
- Daylight saving

Support and tools



SDK

In the Support forum, you can gain access to the Software Development Kit (SDK), providing you with a framework for building software running on Squid.link. The framework is based on Buildroot - a simple, efficient, and easy-to-use tool for generating embedded Linux systems through cross-compilation.



Demo Application

You can use the demo application for java implementation of lowlevel interaction with devices. Establish a connection to the gateway, join devices across wireless technologies, configure reporting, and start communicating with the devices via the demo application.

Squid.link 2B - Technical specifications

General Dimensions (W x H x D) Color	102 x 102 x 28 mm / 4 x 4 x 1,1 inches White (or customer specific)	_	WLAN OPTIONAL	Frequency: 2.4 GHZ Protocol IEEE: 802.11 b/g/n (Access Point and/or Station) Sensitivity Typ: -98 dBm Ouput power Typ: +20 dBm	
Platform	CPU: ARM926EJ-S @ 454 MHz Memory options: 128 MB RAM + 256 MB Flash		Wireless Module	DevCom module space for cust	om module
Power supply	256 MB RAM + 512 MB Flash External netadapter 9V DC, 2 Amp.	-	Bluetooth OPTIONAL	Protocol: 5.1 Sensitivity Typ: -94 dBm Transmit power Typ: +12 dBm	
Power consumption	Optional: Power over Ethernet (PoE) Typical: 1.2 W Max. : 2.5 W	-	BLE Pro OPTIONAL	Protocol: 5.1 Sensitivity: -95dBm (-103 dBm @ 125 KB/s) Transmit power: +19dBm	
Battery backup OPTIONAL	2-4 hours battery back-up 3.7 V 2000mAh Li-Polymer User exchangable				
Ethernet	10/ 100 Mbit/s	OPTIONAL		LTE Cat1 (EU) / LTE Cat1 (US) - LTE Cat-M1 / NB-IoT Antenna options: Internal antenna, external antenna, or both	
Expansions	USB port (hidden in compartment) Internal Micro SD card slot	-	SIM card OPTIONAL	Micro SIM (single or dual) Embedded SIM (eSIM) Micro - Embedded SIM	
Environment	IP class: IP20 Operation temperature 0 to +50°C (32 - 122°F) Battery temperature 0 to 40°C (32 - 104°F) Relative humidity 5% - 85%, Non condensing		Certifications Radio	EN 300 328 EN 300 220-1 EN 300 220-2 EN 301 511	EN 301 908-1 EN 301 908-13 RED CE
Hardware Security	NXP SE050 Apple MFi (Requires Apple certification of the end product)		Safety	EN 62368-1:2014 + A11:2017 EN 62311:2008	
Wireless communication Zigbee OPTIONAL	Frequency: 2.4 GHZ Protocol: Zigbee 3.0 Sensitivity Typ: -101 dBm Output power Typ: +18 dBm (+12 dBm EU)		EMC	EN 301 489-1 EN 301 489-17 EN 301 489-3 EN 55032:2015 + A11:2020	EN 55035:2017 + A11:2020 EN IEC 61000-3-2:2019 EN 61000-3-3:2013 + A1:2019 EN 301 489-52
Wireless M-Bus/ Sub 1 GHz Radio	Frequency: 868 MHZ (Europe only) Protocol: WMB TI KCI Mode Sensitivity Typ: -100 dBm Alternative: Other Sub 1 GHZ protocols	-	FCC	SAR Evaluation: 47 CFR Part 1.1307 47 CFR Part 1.1310 47 CFR Part 2.1091	Radio Spectrum: 47 CFR Part 15, Subpart C 15.247 47 CFR Part 15, Subpart B 47 CFR Part 15, Subpart C 15.249
Z-Wave OPTIONAL (Requires Z-Wave certified end product)	Frequency: 868/916 MHz, etc. (depending on region) Protocol: Z-Wave Plus Sensitivity: -103 dBm Output power: +4 dBm	-	IC	RSS102 Issue 5 March 2015 RSS-247 Issue 2, February 2017 RSS-Gen Issue 5, March 2019 Amendment 1	ICES-003:Issue 6 RSS-210 Issue 10 Dec 2019

Linux



Squid.link 2X - Technical specifications

General Dimensions Color	W 102 x H 102 x D28 mm (W 4 x H 4 x D 1,1 inches) White (or customer specific)	WLAN OPTIONAL	Frequency: 2.4 GHZ Protocol IEEE: 802.11 b/ g/ n (Access Point and/or Station) Sensitivity Typ: -98 dBm Ouput power Typ: +20 dBm	
Platform	RAM 512/1024 MB	Wireless Module	DevCom module space for cus	tom module
Power supply	Flash 4 GB External netadapter gV DC, 2 Amp.	Bluetooth Optional	Protocol: 5.1 Sensitivity Typ: -94 dBm Transmit power Typ: +12 dBm	
Battery backup OPTIONAL	1-3 hours / up to 12 hours in low power mode (wake-on-ZigBee) 3,7V 2000mAh Li-Polymer User exchangable	BLE Pro OPTIONAL	Protocol: 5.1 Sensitivity: -95dBm (-103 dBm @ 125 KB/s) Transmit power: +19 dBm	
Ethernet	10/ 100 Mbit/s USB port (hidden in compartment) Internal Micro SD card slot	Cellular Module OPTIONAL	Internal Modem Options: LTE Cat1 (EU) / LTE Cat1 (US) - LTE Cat-M1 / NB-IoT Antenna options: Internal antenna, external antenna, or both	
Environment	IP class: IP20 Operation temperature 0 to +50°C (32 - 122°F) Battery temperature 0 to 40°C (32 - 104°F)	SIM card OPTIONAL	Micro SIM (single or dual) Embedded SIM (eSIM) Micro + Embedded SIM	
Hardware Security	Relative humidity 5% - 85%, Non condensing NXP	Certifications Radio	EN 300 328 EN 300 220-1 EN 300 220-2	EN 301 908-1 EN 301 908-13 RED
Accelerometer OPTIONAL	Apple MFi (Requires Apple certification of the end product) 3-axis, 8-bit	Safety	EN 62368-1:2014 + A11:2017 EN 62311:2008	
Wireless communication Zigbee OPTIONAL	Frequency: 2.4 GHZ Protocol: Zigbee 3.0 Sensitivity Typ: -101 dBm Output power Typ: 18 dBm (+12 dBm EU)	EMC	EN 301 489-1 V2.2.3 EN 301 489-17 V3.2.4 EN 301 489-3 V2.1.1 EN 55032:2015 + A11:2020	EN 55035:2017 + A11:2020 EN IEC 61000-3-2:2019 EN 61000-3-3:2013 + A1:2019 EN 301 489-52
Wireless M-Bus/ Sub 1 GHz Radio	Frequency: 868 MHZ (Europe only) Protocol: WMB TI KCI Mode Sensitivity Typ: -100 dBm Alternative: Other Sub 1 GHZ protocols	FCC	SAR Evaluation: 47 CFR Part 1.1307 47 CFR Part 1.1310 47 CFR Part 2.1091	Radio Spectrum: 47 CFR Part 15, Subpart C 15.247 47 CFR Part 15, Subpart B 47 CFR Part 15, Subpart C 15.249
Z-Wave OPTIONAL (Requires Z-Wave certified end product)	Frequency: 868/916 MHz, etc. (depending on region) Protocol: Z-Wave Plus Sensitivity: -103 dBm Output power: +4 dBm	IC	RSS102 Issue 5 March 2015 RSS-247 Issue 2, February 2017 RSS-Gen Issue 5, March 2019 Amendment 1	ICES-003:Issue 6 RSS-210 Issue 10 Dec 2019
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P R O D U C T S



About Develco Products

Develco Products is a B2B company providing a market-ready, white label IoT platform to solution providers within the fields of security, care, and energy management. Develco Products offers a range of wireless gateways, sensors and alarms, smart plugs, smart relays, and meter interfaces.

Tomorrow's technology today

We are experts in wireless communication and have developed products based on a wide range of wireless technologies since 2007. We take pride in advancing the technology of Internet of Things and work with leading organizations and institutions in bringing you tomorrow's wireless technology today.



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