connectBlue®

The strongest connection in a wireless world

Wireless Selection Guide

Defining and Leading "Wireless"

With high-performing connectivity solutions from the most reliable and committed wireless provider

"Wireless" is not a technology – it's a commitment. It's not about what works. It's about how well it works. For over a decade, we have been a leading provider of reliable wireless solutions for the last hundreds of meters of connectivity. The robust and high performing products are designed and tested for the most demanding applications.

Our offering consists of wireless system-on-modules, ready-to-embed modules and ready-to-use devices based on Classic Bluetooth, Bluetooth low energy, WLAN / Wireless LAN, and Multiradio solutions.

Why Choose connectBlue?

Fanciful sales talk is easy, but we stick to facts. And there are some clear differentiators that set us apart from others.

connectBlue = Reliability

connectBlue is not a novice entrepreneur; we have delivered wireless solutions since the year 2000 when the first wireless standards were introduced. And we are here to stay.

We are prepared for the future; we developed and own our software IP (Bluetooth stack and WLAN drivers) so we can smoothly build and enhance compatible products and remain silicon independent without affecting customers.

Our customers' solutions operate in the most demanding applications. They have chosen connectBlue as a preferred supplier since our robust wireless solutions have proven faultless operation 24/7 under the toughest of conditions regardless of dust, humidity, temperature variations, and rapid movement changes.

Not only can you rely on our 24-hour first-line support from offices in Sweden, Germany and the USA, but we have also carefully selected and trained wireless distributors covering 75 countries.

connectBlue = Performance

From the get-go, connectBlue has delivered high performing wireless solutions. We only deploy global and open standards; this means that you get connectivity with your everyday mobile device. With us you can replace cumbersome cables in tough environments or bring your "Internet of Things" vision to reality. Our products are optimized to seamlessly connect sensors to the Internet.

Compared to customers' internally developed solutions, connectBlue's wireless solutions considerably decrease time to market; we are talking about weeks instead of years. The connectBlue products have already undergone time consuming design, testing and type approvals. For instance, our products are radio type approved for the European, US, Canadian, Japanese markets as well as are compliant with EMC, Safety and Medical standards, and the Bluetooth qualification program.

The Sweden-based manufacturing is conducted by market leading partners with proven world class operational performance according to ISO9001, ISO13485, high IPC class and AQL standards. We go the extra mile by applying automated test systems designed for high volume production.

Our list of high performing facts is long. It includes full WLAN dual-band coverage, concurrent use of Classic Bluetooth and Bluetooth low energy, high Bluetooth data throughput, seamless roaming, low emission mode, smart configuration options, extended temperature range, built-in watchdog timer for secure system design, WLAN enterprise security, multiradio capacity, and much more.

WIRELESS STANDARD	Classic Bluetooth	Bluetooth low energy	WLAN
Data throughput	+/-	-	++
Robustness	++	++	+/-
Range	10-300m	10-250m	50-300m
Local system density	++	++	-
Roaming	+	N/A	++
Large scale network	-	+	+/-
Low latency	+++	++	+/-
Connection set-up speed	-	++	+/-
Power consumption	+	+++	-
Cost	+	++	-

+ = Good ++ = Strong +++ = Very strong +/- = Average - = Weak

connectBlue = Commitment

Working with connectBlue isn't about buying a wireless module; you get full access to our wireless expertise. Our engineers have more than 500 man years of experience in communication design, embedded systems, and wireless technologies. The connectBlue employee retention rate is high; our employees can grow and develop their skills while exploring "wireless" from new and innovative angles.

Our customers tell us time after time that we offer them support like no other. We never give up and we act as our customers' champions. The pre-sale support, after-sale support and online documentation transparency is unparalleled.

We continuously drive the wireless evolution by being on the forefront of innovation. We can't disclose all we do, but publically announced collaborations include participation in Internet of Things cancer care to several Bluetooth SIG working groups.

Which "Wireless" Fits Best?

One wireless technology doesn't offer all the features and strengths that fit every application requirement.

- Choose Classic Bluetooth for wireless connectivity in tough environments. Robust features include Adaptive Frequency Hopping (AFV), Forward Error Correction (FEC), automatic power control, high system density and connectBlue's Low Emission Mode® which offers trouble-free communication without complicated, time consuming frequency planning and complex, expensive installations.
- Choose Bluetooth low energy for periodic connectivity with battery-operated small devices, smartphones, tablets, gateways, etc.
- Choose WLAN 802.11 a, b, g, n (commonly referred to as WiFi) for wireless connectivity with the existing LAN / WLAN infrastructure or to create high throughput ad-hoc networks.

"Wireless" is all about Seamless Connectivity

We offer the most proven – not just the latest – wireless solution.

Wireless communication isn't solely about getting rid of constraining and limiting cables. To see the true potential of "Wireless" you have to look for other benefits and incentives than just freedom from cables.

Internet of Things (IoT)

Accessing sensor devices over the Internet is the technical evolution referred to as the Internet of Things (IoT). A key requirement for IoT is the use of an easy-to-deploy, cost efficient, low power and standardized wireless technology; as referenced by the Multiradio OWL355 module.

In most IoT applications and solutions, the sensor device needs to be connected to a gateway and then via an Ethernet connection or cellular modem to the Internet.

Wireless Serial Communication

Serial communication is the most used interface between devices and can be easily replaced by a wireless link using our Serial Port Modules or IP65-classed Serial Port Adapters. The products are easy to configure for various user scenarios, optimizing for range or throughput, connection methods, security options, etc. You can choose freely or combine wireless technologies. Modules are available with various output power, antenna solutions, interface options, etc.

Developed to meet tough demands, our products have fully embedded stacks and UART logic level and/or RS232 (modules) or RS232/422/485 (devices) interfaces, without any host drivers needed.

Wireless Ethernet Communication

Wireless Ethernet communication is used when you need to replace the Ethernet cable with a robust and maintenance-free wireless connection.

Our Rugged Ethernet Port Adapters are available either in Bluetooth or WLAN versions and can act either as a Wireless Bridge or as client in a wireless infrastructure.

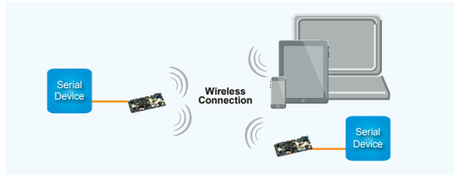
The Access Point connects Classic Bluetooth and Bluetooth low energy devices to the 10/100 Base-T Ethernet network.

For those that prefer to embed modules in host devices, our WLAN SPI / SDIO modules provide fully radio type approved dual-band solutions.

Wireless Customer Developed Applications

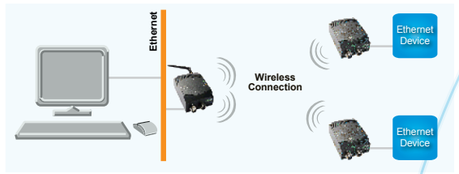
Only one's own imagination limits the possibilities of wireless use cases in medical and industrial applications. By making use of our wireless system-on-modules, you can embed your customer developed application software directly into the module's microcontroller unit (MCU). Thereby, you can get to the market quicker as well as save on development costs, product costs and the number of MCUs needed.

Examples of customer specific embedded application software you can embed include protocol conversion, data logging, scaling and filtering of digital & analog I/O signals, HMI functionality, CAN-bus connectivity, and intelligent (I2C / SPI) sensor connectivity.

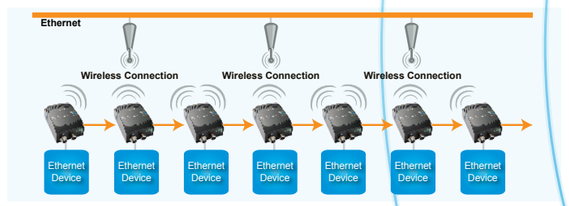


Wireless Serial Communication. Serial communication is the most used interface between devices. These serial cables can easily be replaced with wireless connections in point-to-point and multidrop setups either by embedding a serial port module (see above) in a device or using an external IP65-classed serial port adapter.

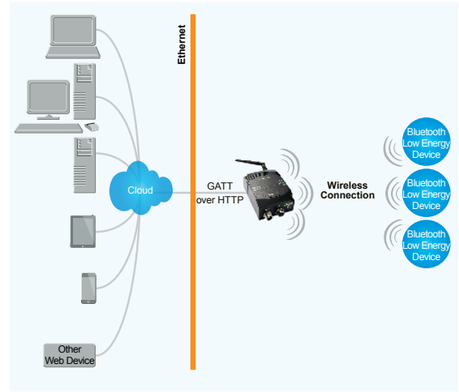
Wireless Ethernet Communication. Here, two Ethernet Port Adapters replace the Ethernet cable with a wireless connection. The connection between the Ethernet Port Adapters is point-to-point in Bluetooth and ad-hoc in WLAN.



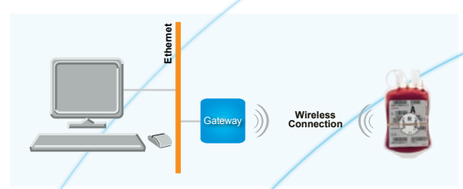
Wireless Ethernet via Access Point. Here, Bluetooth Ethernet Port Adapters are used to connect Ethernet devices to an Ethernet infrastructure via a Bluetooth Access Point. One can also use a WLAN Access Point and Ethernet Port Adapters.



Wireless Ethernet Roaming. Here, WLAN /Bluetooth Ethernet Port Adapters connect to an Ethernet infrastructure via multiple Access Points. The WLAN Ethernet Port Adapters support several roaming modes including seamless roaming.



Internet-of-Things (IoT). Gateways are essential in IoT as they, for instance, "translate" the Bluetooth low energy serial data and GATT-based services to Internet protocols. A web server run application can access data in gateway connected sensor devices.



Wireless Custom Applications. This is an IoT custom application example. Based on temperature and elapsed time, the blood bag's tracer calculates and logs the blood condition and remaining use time. The tracer is connected to a Bluetooth low energy gateway for communication to the main system.

Wireless Solutions Tailored for Demanding Applications

We deliver superior wireless solutions. Nothing less.

Our wireless solutions are tailored for the needs of the last hundreds of meters of connectivity in demanding industrial, medical, measurement / data acquisition and quality assurance applications. We only deploy standard technologies such as Classic Bluetooth, Bluetooth low energy, and WLAN (also commonly referred to as WiFi).

Based on your particular use case, we have a solution that fits you – all developed to satisfy industrial and medical needs on robustness, time-to-market and performance.

Wireless System-on-Modules

If you wish to embed a customer developed application on top of the integrated software stack in the connectBlue wireless module, we offer a range of wireless system-on-modules where you can benefit from the design, testing and type approvals already implemented in the module. Thereby, you get a compact system design on a proven hardware platform with full application flexibility gaining greatly on time-to-market and cost efficiency.

Wireless Ready-to-Embed Modules

Developing your own solution takes 6-18 months and costs 150-500kEUR / 200-650kUSD depending on technology, frequencies / channels, test systems, radio type approvals, etc. And when the chipset reaches its last time buy, you have to start over. So, by instead embedding our proven and easily configurable modules you can greatly save on cost and time.

Wireless Ready-to-Use Devices

If you wish to implement a complete wireless product, we offer a wide range of ready-to-use robust devices. With these products, you can be up and running quickly and benefit from the IP65-classed housing and easy setup.

Wireless Services & Solutions

In addition to our off-the-shelf wireless products, we can support customers when they design their solutions using standard connectBlue software and hardware or need customized functions and features

Highlighted connectBlue Features

Transparent Bluetooth Dual-mode

From your host, you can seamlessly choose to connect with our Bluetooth dual-mode devices either via over-the-air serial port emulation, the Generic Attribute Profile (GATT) or both. Then, from the dual-mode device you can in parallel connect Classic Bluetooth devices (via the Serial Port Profile SPP) and Bluetooth low energy devices (via GATT or the connectBlue Serial Port Service). This transparent and flexible use of the Bluetooth technologies is unique for connectBlue.

WLAN Dual-band Support

Our WLAN dual-band support spans IEEE 802.11 a, b, g, n in the 2.4GHz and full 5GHz bands (channels 36-165, U-NII Band 1, 2, 2e, 3). This dual-band support and expanded frequency channel range provides you with a more robust wireless experience.

Smartphone / Tablet Connectivity Support

iOS and Android connectivity is a natural component of our offering. Thus, your everyday mobile device can – via an installed "app" – gather certain data and perform tasks such as HMI panel or remote control functionality.

Configuration Possibilities

All our serial port products can be configured via AT commands which give access to advanced settings or when you want to configure devices via your own microcontroller. There is also our Serial Port Toolbox which is a Windows-based application that adds a graphical user interface to the AT commands.

Our Ethernet Port Adapters can be configured through our SMART method which is an easy push-button method. These devices can also be configured via a web interface or SNMP.

Wireless System-on-Modules Unleash Application Boundaries

Products that allow for embedded customer applications resulting in a compact system design on a proven hardware platform.

Type Approvals, Certification & Compliance

Our products are radio type approved for USA (FCC Part 15), Europe (ETSI R&TTE), Japan (MIC - formerly TELEC) and Canada (IC RSS). Also, the products follow Electromagnetic Compatibility (EMC), Health and Safety as well as Medical electrical equipment directives and the Bluetooth qualification program. Further, our Access Point and Ethernet Port Adapters are listed for hazardous location UL/CSA Class 1 Div 2.

The connectBlue products are produced in Sweden at high quality manufacturing facilities that uphold all necessary certificates including ISO9001 and ISO13485.

WIRELESS ADVANTAGES

- Greater mobility and possibility to move devices and connect to smartphones and tablets freely without constraining cables
- Bypassing long distances and areas where cables cannot physically fit
- Fast and easy installation and commissioning
- High flexibility if there is a need to modify an installation
- Increased personal safety by not having to be physically close to a device during configuration and/or maintenance
- Easy integration of devices into the network

GET STARTED SMOOTHLY

connectBlue offer several guides in how to get started as well as how to optimize the connectBlue investment.

- **Starter & Evaluation Kits**: Acquire valuable understanding of the wireless module's functionality, configuration options, performance, etc. via connectblue.com/products/starter-kits-evaluation-kits/
- **Documentation**: On support.connectblue.com, you can find all the latest documentation, firmware, tools, application notes, etc.
- **Articles & White papers**: On connectblue.com, there are 15+ in depth articles and white papers that detail the possibilities as well as best practices.
- **Videos**: On youtube.com/connectBlueAB, there are 15 tutorial videos on wireless and our products.

KEEP UP-TO-DATE WITH CONNECTBLUE

There are several possibilities for you to get regular updates ranging from email newsletters, to RSS feeds and social media. Make sure that you get timely information by signing up on your preferred channel at connectblue.com/about-us/social-media!

	Platform Module OLP425	System-on-Module OBP421
WIRELESS STANDARD	Bluetooth low energy / Bluetooth Smart	Bluetooth dual-mode / Bluetooth Smart Ready
STANDARD SPECIFICATION		
Bluetooth qualification	v4.0	v4.0
Bluetooth profiles	GATT	SPP DUN GATT
Wireless LAN version	-	-
RADIO		
Antenna type	Internal | External	Internal | External
Max output power incl. antenna	3 dBm | 6 dBm	11 dBm | 13 dBm
Range	50 m | 200 m	300 m | 300 m
2.4 GHz channels	1-39	1-79
5 GHz channels	-	-
TYPE APPROVALS		
US (FCC)	Yes	Yes
Europe (ETSI R&TTE)	Yes	Yes
Canada (IC RSS)	Yes	Yes
Japan (MIC - formerly TELEC)	Yes	Yes
INTERFACE		
UART Logic-level	Yes	Yes
RS232	-	Option [Note 3]
RS422/485	-	Option [Note 3]
Max baudrate	115.2 k	1.5 M
Flow control on/off	Yes	Yes
SPI	Yes	Yes
SDIO	-	-
I/O pins	18 dig, 4 AD conv	21 dig, 7 AD conv
FEATURES		
Throughput	-	1.3 Mbps
AT command support	-	Yes
Max number of slaves	3	7
Extended Data Mode protocol	-	Yes
Security	Simple Pairing	Simple Pairing
Quality of Service (QoS)	-	Yes
Customer application platform	Yes	Yes
Android support	Yes	Yes
iPhone/iPad support [Note 4]	Yes	Yes (via BTLE)
Additional features	Options: battery holder, temperature sensor, accelerometers, etc.	connectBlue Bluetooth Low Energy Serial Port Service
POWER		
Power supply voltage	2.0 - 3.6 VDC	3.0 - 6.0 VDC
Current cons. (min)	0.4 µA @2.0V	0.6 mA @3.0V
Current cons. (average Tx)	-	44 mA @3.0V
CONNECTORS		
Board-to-board	-	Yes
20 pin header	-	-
JST (6-pol)	Option	Option
Solder pads	Yes	Yes
MECHANICAL		
Operating temperature	-40 to +85° C	-30 to +85° C
Machine mountable	Yes	Yes
Mounting holes	Yes	Yes
Dimensions (mm)	15x22x3	16x36x3

Ready-to-Embed Modules that are Certified and Fully Tested

Already proven products that speed up time-to-market and reduce development costs.

	Multiradio Module OWL355	Serial Port Module OLS425 / OLS426	Serial Port Module OBS421	Serial Port Module OBS418	Serial Port Module OBS419
WIRELESS STANDARD	WLAN Bluetooth dual-mode	Bluetooth low energy / Bluetooth Smart	Bluetooth dual-mode / Bluetooth Smart Ready	Classic Bluetooth	Classic Bluetooth
STANDARD SPECIFICATION					
Bluetooth qualification	v4.0 (subsystem)	v4.0	v4.0	v2.1	v2.1+EDR
Bluetooth profiles	HCI	-	SPP DUN PAN GATT	SPP DUN	SPP DUN PAN
Wireless LAN version	802.11 a, b, g, n (dual band, 65 Mbit/s)	-	-	-	-
RADIO					
Antenna type	External [Note 1]	Internal | External	Internal | External	Internal | External	Internal | External
Max output power incl. antenna	TBD	3 dBm | 6 dBm	11 dBm | 13 dBm	6 dBm | 8 dBm	6 dBm | 8 dBm
Range	TBD	50 m | 200 m	300 m | 300 m	75 m | 150 m	75 m | 150 m
2.4 GHz channels	1-13	1-39	1-79	1-79	1-79
5 GHz channels	36-165 (U-NII Band 1, 2, 2e, 3)	-	-	-	-
TYPE APPROVALS					
US (FCC)	Yes	Yes	Yes	Yes	Yes
Europe (ETSI R&TTE)	Yes	Yes	Yes	Yes	Yes
Canada (IC RSS)	Yes	Yes	Yes	Yes	Yes
Japan (MIC - formerly TELEC)	In progress	Yes	Yes	Yes	Yes
INTERFACE					
UART Logic-level	Yes (Bluetooth)	Yes	Yes	Yes	Yes
RS232	-	-	Option [Note 3]	Option [Note 3]	Option [Note 3]
RS422/485	-	-	Option [Note 3]	Option [Note 3]	Option [Note 3]
Max baudrate	-	115.2 k	1.5 M	460.8 k	1.25 M
Flow control on/off	-	Yes	Yes	Yes	Yes
SPI	-	-	Yes	-	-
SDIO	Yes (WLAN)	-	-	-	-
I/O pins	-	11 digital	9 digital	9 digital	9 digital
FEATURES					
Throughput	TBD	TBD	1.3 Mbps	350 kbps	950 kbps
AT command support	-	Yes	Yes	Yes	Yes
Max number of slaves	-	1	7	1	3
Extended Data Mode protocol	-	-	Yes	-	Yes
Security	WPA2, Enterprise, EAP-TLS	Simple Pairing	Simple Pairing	Simple Pairing	Simple Pairing
Quality of Service (QoS)	Yes	-	Yes	Yes	Yes
Customer application platform	-	-	-	-	-
Android support	Yes	Yes	Yes	Yes	Yes
iPhone/iPad support [Note 4]	Yes	Yes	Yes (via I²C)	-	-
Additional features	Infrastructure Ad-hoc Software AP Driver support: Linux (open source)	connectBlue Low Energy Serial Port Service	Repeater, connectBlue Bluetooth Low Energy Serial Port Service		Repeater
POWER					
Power supply voltage	3.1-3.5V & 1.7-1.9V	2-3.6 VDC / 3-6 VDC	3.0 - 6.0 VDC	3.0 - 6.0 VDC	3.0 - 6.0 VDC
Current cons. (min)	TBD	0.4 µA / 6.7 µA	0.6 mA @3.0V	12 mA @3.0V	0.6 mA @3.0V
Current cons. (average Tx)	TBD	10 mA @ 3.0V	44 mA @3.0V	20 mA @3.0V	20 mA @3.0V
CONNECTORS					
Board-to-board	-	- / Yes	Yes	Yes	Yes
20 pin header	-	-	-	-	-
JST (6-pol)	-	-	Option	-	Option
Solder pads	Yes	Yes	Yes	Yes	Yes
MECHANICAL					
Operating temperature	-40 to +85° C	-40 to +85° C	-30 to +85° C	-30 to +85° C	-30 to +85° C
Machine mountable	-	Yes	Yes	Yes	Yes
Mounting holes	Yes	Yes	Yes	Yes	Yes
Dimensions (mm)	15x22x3	15x22x3 / 16x36x5	16x36x3	16x36x3	16x36x3

	SPI Module OWL221a	SPI Module OWL253	SDIO Module OWL222a	UART Serial Port Module OWS451
WIRELESS STANDARD	WLAN / Wireless LAN	WLAN / Wireless LAN	WLAN / Wireless LAN	WLAN / Wireless LAN
STANDARD SPECIFICATION				
Bluetooth qualification	-	-	-	-
Bluetooth profiles	-	-	-	-
Wireless LAN version	802.11 a, b, g, n (dual band, 65 Mbit/s)	802.11 a, b, g, n (dual band, 65 Mbit/s)	802.11 a, b, g, n (dual band, 65 Mbit/s)	802.11 a, b, g, n (dual band, 65 Mbit/s)
RADIO				
Antenna type	Int. | Ext. [Note 1]	Int. | Ext. [Note 1]	Int. | Ext. [Note 1]	Int. | Ext. [Note 1]
Max output power incl. antenna	20 dBm | 20 dBm	20 dBm | 20 dBm	20 dBm | 20 dBm	20 dBm | 20 dBm
Range	400 m | 400 m	400 m | 400 m	400 m | 400 m	400 m | 400 m
2.4 GHz channels	1-13	1-13	1-13	1-13
5 GHz channels	36-165 (U-NII Band 1, 2, 2e, 3)	36-165 (U-NII Band 1, 2, 2e, 3)	36-165 (U-NII Band 1, 2, 2e, 3)	36-165 (U-NII Band 1, 2, 2e, 3)
TYPE APPROVALS				
US (FCC)	Yes	Yes	Yes	Yes
Europe (ETSI R&TTE)	Yes	Yes	Yes	Yes
Canada (IC RSS)	Yes	Yes	Yes	Yes
Japan (MIC - formerly TELEC)	Yes (2.4 GHz only)	Yes (2.4 GHz only)	Yes (2.4 GHz only)	Yes (2.4 GHz only)
INTERFACE				
UART Logic-level	-	-	-	Yes
RS232	-	-	-	Option [Note 3]
RS422/485	-	-	-	Option [Note 3]
Max baudrate	-	-	-	1.5 M
Flow control on/off	-	-	-	Yes
SPI	Max 75 MHz	Max 75 MHz	-	-
SDIO	-	-	Max 50 MHz	-
I/O pins	-	-	-	-
FEATURES				
Throughput	20 Mbps	20 Mbps	25 Mbps	500 kbps
AT command support	-	-	-	Yes
Max number of slaves	-	-	-	7
Extended Data Mode protocol	-	-	-	-
Security	WPA2, Enterprise, EAP-TLS*	WPA2, Enterprise, EAP-TLS*	WPA2, Enterprise, EAP-TLS*	WPA2, Enterprise, EAP-TLS
Quality of Service (QoS)	Yes	Yes	Yes	Yes
Customer application platform	-	-	-	-
Android support	Yes	Yes	Yes	Yes
iPhone/iPad support	Yes	Yes	Yes	Yes
Additional features	Infrastructure Ad-hoc Driver support: Linux WinCE Embedded systems	Infrastructure Ad-hoc Driver support: Linux WinCE Embedded systems	Infrastructure Ad-hoc Driver support: Linux WinCE Embedded systems	Embedded TCP/IP stack DHCP server/client DNS resolver
POWER				
Power supply voltage	3.3 - 5.5 VDC	3.3 - 5.5 VDC	3.1 - 3.6 VDC	3.3 - 5.5 VDC
Current cons. (min)	5 mA @3.3V	11 mA @3.3V	5 mA @3.1V	7 mA @3.3V
Current cons. (average Tx)	150 mA @3.3V	230 mA @3.3V	150 mA @3.1V	180 mA @3.3V
CONNECTORS				
Board-to-board	Yes	Yes	Yes	Yes
20 pin header	Option	-	Option	-
JST (6-pol)	-	-	-	Option
Solder pads	-	Yes	-	Yes
MECHANICAL				
Operating temperature	-30 to +85° C	-40 to +85° C	-30 to +85° C	-40 to +85° C
Machine mountable	-	-	-	Yes
Mounting holes	Yes	Yes	Yes	Yes
Dimensions (mm)	23x36x3	23x36x3	23x36x3	23x36x3

Explanations on Table Notes

1 Diversity supported
2 Approximate maximum range
3 Via external transciever
4 Special licensing & production requirements applies for the Classic Bluetooth products
5 JST connector required

* In progress

Ready-to-Use Devices for Rugged Use

Products with IP65 classed housing, fully certified and tested.

	Serial Port Adapter RBS421s	Access Point RBE221s	Ethernet Port Adapter RBE221i	Ethernet Port Adapter RWE231i	Ethernet Port Adapter RWE241i	Ethernet Port Adapter RWE251s
WIRELESS STANDARD	Bluetooth dual-mode / Bluetooth Smart Ready	Bluetooth dual-mode / Bluetooth Smart Ready	Classic Bluetooth	WLAN / Wireless LAN	WLAN / Wireless LAN	WLAN / Wireless LAN
STANDARD SPECIFICATION						
Bluetooth qualification	v4.0	v4.0	v2.1+EDR	-	-	-
Bluetooth profiles	SPP DUN PAN GATT	PAN GATT	PAN	-	-	-
Wireless LAN version	-	-	-	802.11 b, g, n (2.4 GHz)	802.11 a, n (5 GHz)	802.11 a, b, g, n (dual-band)
RADIO						
Antenna	External	External	Internal	Internal	Internal	External
Max output power	13 dBm	13 dBm	13 dBm	20 dBm	11 dBm	20 dBm
Range [Note 2]	300 m	300 m	300 m	400 m	200 m	400 m
2.4 GHz channels	1-79	1-79	1-79	1-13	-	1-13
5 GHz channels	-	-	-	-	36-48, 52-140 (U-NII Band 1, 2, 2e)	36-48, 52-140 (U-NII Band 1, 2, 2e)
TYPE APPROVALS						
US (FCC)	Yes	Yes	Yes	Yes	Yes	Yes
Europe (ETSI R&TTE)	Yes	Yes	Yes	Yes	Yes	Yes
Canada (IC RSS)	Yes	Yes	Yes	Yes	Yes	Yes
Japan (MIC - formerly TELEC)	-	Yes	Yes	Yes	-	Yes (2.4 GHz only)
Hazardous location UL/CSA Class 1 Div 2	-	Yes	Yes	Yes	Yes	Yes
INTERFACE						
RS232	Yes	-	-	-	-	-
RS422/485	Yes	-	-	-	-	-
Max baudrate	460.8 k	-	-	-	-	-
Flow control on/off	Yes	-	-	-	-	-
Ethernet	-	Yes	Yes	Yes	Yes	Yes
SOFTWARE FEATURES						
AT command support	Yes	Yes	Yes	Yes	Yes	Yes
Web configuration	-	Yes	Yes	Yes	Yes	Yes
Max number of slaves	7	7	1	1	1	1
Extended Data Mode protocol	Yes	-	-	-	-	-
Security	Simple Pairing	Simple Pairing	Simple Pairing	WPA2, Enterprise, PEAP, LEAP	WPA2, Enterprise, PEAP, LEAP	WPA2, Enterprise, PEAP, LEAP
Quality of Service (QoS)	Yes	Yes	Yes	-	-	-
Additional features	Repeater, connectBlue Bluetooth Low Energy Serial Port Service	Wireless Access Point (NAP), Bluetooth Low Energy Gateway	Wireless Ethernet Bridge, Personal Area Network User (PANU)	Wireless Ethernet Bridge, Wireless LAN Client, Seamless Roaming, Redundancy	Wireless Ethernet Bridge, Wireless LAN Client, Seamless Roaming, Redundancy	Wireless Ethernet Bridge, Wireless LAN Client, Seamless Roaming, Redundancy
POWER						
Power supply voltage	8 - 30 VDC	9 - 30 VDC	9-30 VDC	9 - 30 VDC	9 - 30 VDC	9 - 30 VDC
Current cons. (min)	9 mA @30V	35 mA @30V	35 mA @30V	47 mA @30V	47 mA @30V	47 mA @30V
Current cons. (average Tx)	20 mA @30V	43 mA @30V	43 mA @30V	59 mA @30V	59 mA @30V	59 mA @30V
CONNECTORS						
9-pin D-SUB	Yes	-	-	-	-	-
M12	-	Yes	Yes	Yes	Yes	Yes
MECHANICAL						
Operating temperature	-30 to +85° C	-30 to +65° C	-30 to +65° C	-40 to +65° C	-40 to +65° C	-30 to +65° C
Mounting holes	Yes	Yes	Yes	Yes	Yes	Yes
Housing	Metal, IP 65	Plastic, IP 65	Plastic, IP 65	Plastic, IP 65	Plastic, IP 65	Plastic, IP 65
Dimensions (mm)	76x85x35	91x66x36	91x66x36	91x66x36	91x66x36	91x66x36

The connectBlue Commitment

All of us have pledged to bring you wireless innovation. Not tomorrow. Today.

Imagine equipment that is in constant rapid motion at -40°C; it is monitored, maintained, updated and operated wirelessly from a distance, massively increasing uptime and personal safety. Or, imagine a sensitive gene duplication sequence where the whole gene process is performed in a 100% sterile environment due to high-speed reliable wireless solutions. This is the essence of connectBlue - wireless solutions based on tough demands on robust behavior and high performance.

connectBlue is a leading wireless provider for demanding industrial, medical, measurement / data acquisition, and quality assurance applications. We create wireless solutions for our 4,000 customers that go the extra mile, not only optimizing production economy and personal safety but even open up for applications previously not possible. Just see what we have done with IoT.

Working with connectBlue isn't about just buying a wireless product. It's combining forces to find the best wireless solution. The mix of combined expertise is filtered through a toolbox of software, hardware, industry-specific specialists and poured into a wireless solution that can withstand tough operation in industrial and medical applications.

connectBlue was founded in 2000 focused on a few key requirements: reliability, performance and commitment. Still today, these requirements are the focus of our operations.

Our engineers have more than 500 man years of experience in communication design, embedded systems, and wireless technologies. Our head office lies in Sweden and our top-notch external production facilities are also in Sweden. We have local sales and support from the offices in Germany and the USA. And, on top of that, we have distributors in 75 countries.

Working at connectBlue means that you work with some of the world's most demanding brands and industries (look at our list of clients). They in themselves represent the highest standard of innovation in their industry segments. This is why we have to excel at what we do. We employ and develop staff with great experience as well as young and innovative ideas. That combination defines the future of wireless technology.

This is who we are.We provide a safe step into the wireless future.

Wireless is not a Technology. It's a Commitment.

We have been in wireless since the year 2000 when we launched the world's first wireless serial port adapter. Based on Classic Bluetooth, Bluetooth low energy, WLAN / Wireless LAN and Multiradio solutions, we develop wireless system-on-modules, ready-to-embed modules and ready-to-use devices as well as services and solutions.

Our head office lies in the wireless epicenter of Southern Sweden. There, we also utilize the resources from external, high quality manufacturing facilities where each product is individually tested and tuned for consistent performance. We have local German and US sales offices and first-line support backed by the European technical team allowing for a virtually 24 hour coverage.

For more than a decade, we have helped some of the world's most demanding brands to shorten time-to-market, reduce product costs and create new wireless applications. Our wireless solutions are designed and tested for the most demanding environments in industrial, medical, measurement / data acquisition, and quality assurance applications.

Our product strategy is simple.
Superior solutions. Nothing less.

FOLLOW US AT

connectBlue®

The strongest connection in a wireless world

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