Product Summary

OBS421 series

Stand-alone dual-mode Bluetooth modules

S

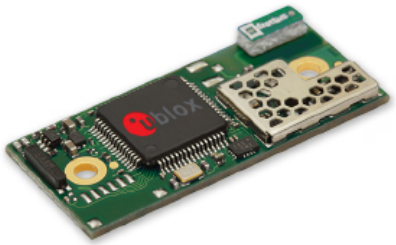
Standard

Professional

Automotive

Proven dual-mode Bluetooth modules with best performance and multi-point functionality

- Bluetooth v4.0 with Bluetooth low energy and Bluetooth BR/EDR (dual-mode Bluetooth)
- Embedded stack (SPP, DUN, PAN, GATT)
- Low Emission Mode® limits interference with other 2.4 GHz RF
- u-blox Low Energy Serial Port Service
- High throughput of 1.3 Mbit/s
- Advanced multipoint capability with 7 slaves
- High speed iAP2 connectivity



16 × 36 × 3 mm

Product description

The powerful stand-alone Bluetooth module OBS421 is a dual-mode Bluetooth module complete with embedded Bluetooth dual mode stack and serial port application. The OBS421 features a UART interface for transparent serial data transmissions. It can be used as a dual-mode Bluetooth client for any host and it can access any dual-mode Bluetooth device that implements services based on the Generic Attribute Profile (GATT).

The OBS421 can also be used in devices connected to smartphones, tablets and laptops via the Serial Port Profile.

The module is fully Bluetooth qualified and provides modular radio type approvals for the US, Canada, Europe, Japan and China. The OBS421 is also compliant with EMC, Safety and Medical standards.

The robust module is easily configured via AT commands and covers a range of 300 meters, throughput up to 1.3 Mbit/s and operating temperatures from –30 °C to +85 °C.

Product selector

Model	Radio					Interfaces			Power		Connectors		Features							Grade		
	Bluetooth Low Energy v4.0	Bluetooth BR/EDR	Antenna type	Max output power incl. antenna	Max range	UART	I²C	GPIO pins	Power supply: 3.0 V - 6.0 V	Current consumption (idle)	Solder pads	Board-to-board	Throughput (Mbit/s)	iAP2 throughput (Mbit/s)	AT command support	Maximum number of slaves	Extended Data Mode protocol	Low Energy Serial Port Service	Bluetooth profiles	Standard	Professional	Automotive
OBS421i-24	•	•	I	11 dBm	250 m	•		9	•	0.6 mA	•	•	1.3		•	7	•	•	SDPG		•	
OBS421x-24	•	•	E	13 dBm	300 m	•		9	•	0.6 mA	•	•	1.3		•	7	•	•	SDPG		•	
OBS421i-i4	•	•	I	11 dBm	250 m	•	•	9	•	0.6 mA	•	•	1.3	1	•	7	•	•	SDPG		•	
OBS421x-i4	•	•	E	13 dBm	300 m	•	•	9	•	0.6 mA	•	•	1.3	1	•	7	•	•	SDPG		•	

E = External antenna / I = Internal antenna / S = SPP / D = DUN / P = PAN / G = GATT

OBS421 series

S

Features

Bluetooth	v4.0 (Bluetooth low energy and Bluetooth BR/EDR)
Range	250 m, internal antenna 300 m, external antenna
Output power	11 dBm, internal antenna 13 dBm, external antenna
Throughput	1.3 Mbit/s (Bluetooth BR/EDR)
iAP2 throughput	1 Mbit/s
Microprocessor	72 MHz, ARM 32-bit Cortex M3 processor capacity with 64 kB RAM and 384 kB flash

Software features

Embedded software	u-blox dual mode Bluetooth stack Serial port application
Bluetooth profiles & services	u-blox Low Energy Serial Port Service Generic Attribute Profile (GATT) Serial Port Profile (SPP) Dial-up networking Profile (DUN GW, DUN DT) Personal Area Networking Profile (PAN) roles: PANU & NAP
Profile roles	Central Role, Peripheral Role
Max. number of slaves	7 Bluetooth BR/EDR & Bluetooth low energy
Configuration tools	AT commands via Bluetooth or serial port Serial Port Toolbox (Windows-based SW)
Low Emission Mode®	Prevent disrupting other 2.4 GHz radios
Wireless Multidrop™	For simultaneous connections to Bluetooth low energy and Bluetooth BR/EDR devices
Extended Data Mode™	Individually controlled multipoint data channels
Quality of Service (QoS)	
Repeater functionality	Extended range
Security	Simple pairing
iAP + iAP2	High speed iOS connectivity with Bluetooth BR/EDR connections

Interfaces

UART Logic level RS232/RS422/ RS485	Option via external transceiver
Baud rate	Max 1.5 Mbit/s Support for non-standard baud rates
Flow control	CTS/RTS (hardware) or none
GPIO pins	9 pins
U.fl antenna connector (external antenna variants only)	

Package

Dimensions	16.0 x 36.0 x 3.2 mm (internal antenna) 16.0 x 36.0 x 2.6 mm (external antenna)
Weight	2 g
Mounting	Mounting holes, Machine mountable, Board-to-board connector, Solder land pads

Environmental data, quality & reliability

Operating temperature	–30 °C to +85 °C

Electrical data

RF power supply	3.0 VDC to 6.0 VDC
Power consumption	0.6 mA @ 3.0 V (min.) 44 mA @ 3.0 V (average Tx)

Certifications and approvals

Type approvals	Europe (ETSI RED); US (FCC/CFR 47 part 15 unlicensed modular transmitter approval); Canada (IC RSS); Japan (MIC - formerly TELEC); China (SRRC) [1]
Health and safety	EN 62479, EN 60950-1, IEC 60950-1
Medical Electrical Equipment	EN 60601-1-2
Bluetooth Qualification v4.0	

1 = Internal antenna variants only

Support products

EVK-OBS421 Evaluation Kit	
cB–OBS421i–26–B	Includes OBS421i-24 module with additional JST connector, USB module adapter (installs virtual COM-port), USB extension cable, JST to flying leads cable, configuration SW.

Product variants

cB–OBS421i–24	OBS421 (rev B) with internal antenna
cB–OBS421x–24	OBS421 (rev B) with U.FLconnector for external antenna
Modules with iAP1 & iAP2 support for Bluetooth BR/EDR connections to Apple iOS devices*:	
cB–OBS421i–i4	OBS421 (rev B) with iAP support and internal antenna
cB–OBS421x–i4	OBS421 (rev B) with iAP support and U.FL connector for external antenna

* All current OBS421 module versions support Apple iOS connections via Bluetooth low energy. Bluetooth BR/EDR connections are supported only by OBS421 versions with iAP support, but other special requirements also apply, contact u-blox for further information.

Further information

For contact information, see www.u-blox.com/contact-us.

For more product details and ordering information, see the product data sheet.