

Ready-to-embed Wireless Modules





I/O Module
ORI411

WIRELESS STANDARD	Bluetooth		Bluetooth		Bluetooth		Bluetooth		Bluetooth		Bluetooth	
STANDARD SPECIFICATION												
Bluetooth qualification	2.1 (3.0 ready)		2.1+EDR (3.0 ready)		2.0		2.1+EDR (3.0 ready)		2.1+EDR (3.0 ready)		2.1+EDR (3.0 ready)	
Bluetooth profiles ^{Note 5}	SPP DUN FTP OPP		SPP DUN PAN FTP OPP		SPP DUN FTP OPP		SPP DUN PAN FTP OPP		SPP PAN		SPP	
Wireless LAN version	-		-		-		-		-		-	
RADIO												
Antenna	Internal	External	Internal	External	Internal	External	Internal	External	Internal	External	Internal	External
Max output power	5 dBm	6 dBm	5 dBm	6 dBm	17 dBm	17 dBm	17 dBm	17 dBm	5 dBm	6 dBm	5 dBm	6 dBm
Range Int./Ext. ^{Note 2}	75 m	150 m	75 m	150 m	200 m	300 m	800 m	1000 m	75 m	150 m	75 m	150 m
TYPE APPROVALS												
R&TTE (Europe)	Yes		Yes		Yes		Yes		Yes		Yes	
FCC (US)	Yes		Yes		Yes		Yes		Yes		Yes	
IC (Canada)	Yes		Yes		Yes		Yes		Yes		Yes	
INTERFACE												
UART Logic-level	Yes		Yes		Yes		Yes		Yes		Yes	
RS232	Option ^{Note 3}		Option ^{Note 3}		Option ^{Note 3}		Yes		Option ^{Note 3}		Option ^{Note 3}	
RS422/485	Option ^{Note 3}		Option ^{Note 3}		Option ^{Note 3}		Option ^{Note 3}		-		Option ^{Note 3}	
Max baudrate	460.8 k		1.36 M		921.6 k		1.8 M		1.36 M		1.36 M	
Flow control on/off	Yes		Yes		Yes		Yes		Yes		Yes	
SPI	-		-		-		-		-		-	
SDIO	-		-		-		-		-		-	
I/O pins	9 digital		9 digital		-		9 digital		9 digital		16 dig, 4 AD conv	
SOFTWARE FEATURES												
AT command support	Yes		Yes		Yes		Yes		Yes		Yes	
Max number of slaves	1		3		1 (3 or 7 ^{Note 4})		7		3		3	
Extended Data Mode protocol	-		Yes		-		Yes		Yes		Yes	
Security	Yes		Yes		Yes		Yes		Yes		Yes	
Quality of Service (QoS)	Yes		Yes		Yes		Yes		Yes		Yes	
Software features	Point-to-point OBEX (FTP/OPP) ^{Note 5}		Point-to-point Point-to-multipoint Repeater OBEX (FTP/OPP) ^{Note 5}		Point-to-point Point-to-multipoint Repeater OBEX (FTP/OPP) ^{Note 5}		Point-to-point Point-to-multipoint Repeater OBEX (FTP/OPP) ^{Note 5}		Point-to-point Point-to-multipoint Repeater		Point-to-point Point-to-multipoint	
			Platform for customer applications				Platform for customer applications		iPhone/iPad connectivity support ^{Note 6}		18 Digital IOs 4 A/D converters	
POWER												
Power supply voltage	3.0 - 6.0 VDC		3.0 - 6.0 VDC		3.3 - 6.0 VDC		3.3 - 6.0 VDC		3.0 - 6.0 VDC		3.0 - 6.0 VDC	
Current cons. (min)	14 mA		0.8 mA		2.5 mA		0.4 mA @5VDC		TBA		0.8 mA	
Current cons. (average Tx)	25 mA		25 mA		26 mA		35 mA @5VDC		TBA		25 mA	
CONNECTORS												
Board-to-board	Yes		Yes		Yes		Yes		Yes		Yes	
20 pin header	-		-		-		Option		-		-	
JST (6-pol)	-		Option		Option		Option		-		-	
Flexfilm	-		-		Option		-		-		-	
Solder pads	Yes		Yes		Yes		Option		Yes		Yes	
MECHANICAL												
Temperature range	-30 to +85° C		-30 to +85° C		-30 to +85° C		-40 to +85° C		-30 to +85° C		-30 to +85° C	
Machine mountable	Yes		Yes		Yes		Yes		Yes		Yes	
Mounting holes	Yes		Yes		Yes		Yes		Yes		Yes	
Dimensions (mm)	16x36x3.0		16x36x3.0		16x36x2.4		23x36x4.4		23x36x4.0		16x36x3.0	
Evaluation boards	cB-ACC-24 cB-ACC-34		cB-ACC-24 cB-ACC-34		cB-ACC-24 cB-ACC-34		cB-ACC-24 cB-ACC-34		cB-ACC-24 cB-ACC-34		cB-ACC-24 cB-ACC-34	



Serial Port Adapter
OWS451



LAN Module
OWL221a



LAN Module
OWL222a



Serial Port Adapter
OZS311

Wireless LAN		Wireless LAN		Wireless LAN		IEEE 802.15.4	
-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-
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)			
Int.	Ext. ^{Note 1}	Int.	Ext. ^{Note 1}	Int.	Ext. ^{Note 1}	Internal	External
20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	20 dBm	2.5 dBm	4 dBm
400 m	400 m	400 m	400 m	400 m	400 m	200 m	200 m
(preliminary)							
Yes		Yes		Yes		Yes	
Yes		Yes		Yes		Yes	
Yes		Yes		Yes		Yes	
Yes		-		-		Yes	
Option ^{Note 3}		-		-		-	
-		-		-		-	
1.8 M		-		-		57.6 k	
Yes		-		-		Yes	
-		Max 80 MHz		-		-	
-		-		Max 50 MHz		-	
Yes		-		-		Yes	
7		-		-		1	
-		-		-		-	
WPA2, Enterprise		WPA2, Enterprise		WPA2, Enterprise		Yes	
802.11e		802.11e		802.11e		-	
Point-to-point		Infrastructure		Infrastructure		Point-to-point	
Point-to-multipoint		Ad-hoc		Ad-hoc		Optional ZigBee	
Embedded TCP/IP		Driver support:		Driver support:		stack available	
stack		Linux 2.6		Linux 2.6		Platform for	
DHCP server/client		WinCE 5/6		WinCE 5/6		custom designs	
DNS resolver		Embedded systems					
3.3 - 5.5 VDC		3.3 - 5.5 VDC		3.1 - 3.6 VDC		3.3 - 5.5 VDC	
TBA		4.9 mA		4.9 mA		27 mA	
TBA		150 mA		150 mA		27 mA	
Yes		Yes		Yes		Yes	
-		Option		Option		-	
Option		-		-		Option	
-		-		-		-	
Yes		Option*		-		Yes	
-40 to +85° C		-30 to +85° C		-30 to +85° C		-40 to +85° C	
Yes		-		-		Yes	
Yes		Yes		Yes		Yes	
23x36x3.2		23x36x3.1		23x36x3.1		23x36x3.1	
cB-ACC-34		cB-WDK-03-A		cB-WDK-01-A		cB-ACC-24	
		cB-WDK-04-A		cB-WDK-03-A		cB-ACC-34	



WIRELESS SNIFFERS & PROTOCOL ANALYZERS

connectBlue offers Wireless Sniffers & Analyzers by Frontline Test Equipment. The Bluetooth sniffer is a Multi-mode Bluetooth Protocol Analyzer that sniffs both radio traffic and high speed UART HCI packages. It is the only product on the market to handle Bluetooth up to v2.1+EDR.

connectBlue also offers the MeshDecoder which is a real-time debugging, verification and network display analyzer, that simplifies the understanding of IEEE 802.15.4 / ZigBee networks by simultaneously capturing, decoding, displaying and filtering data, and also detecting errors. The product range of Sniffers and Protocol Analyzers also includes Wireless LAN solutions.

With these tools, you get faster commissioning and development times, and thus also reduced engineering costs. The sniffers and analyzers can be used in combination with the following:

- Industrial communication network analyzer
- Serial, async-only protocol analyzer
- Serial, sync/async protocol analyzer



READY-TO-USE WIRELESS PRODUCTS

connectBlue also offers a wide range of Bluetooth, Wireless LAN and IEEE 802.15.4 / ZigBee ready-to-use products in industrial housings. For more information, see www.connectblue.com or request data sheets.



Certified and pre-tested

Benefit from the advantages of low-power modules, fully certified and pre-tested



WIRELESS STANDARD	Bluetooth	Bluetooth	Bluetooth	-	-
CONTENTS					
Wireless module	OBS411i	OBS411i	OBI411i	-	-
Development/adaptor board	USB adapter	RS232 adapter	Platform dev board	RS232 adapter	USB adapter
Others	USB extension cable, documentation and configuration tools	9-pin serial cable, USB Power cable, documentation and configuration tools	9-pin serial cable, USB Power cable, documentation and configuration tools	9-pin serial cable, USB Power cable, documentation and configuration tools	USB extension cable, documentation and configuration tools
COMPATIBLE MODULES					
Bluetooth, OBS410i/x	Yes	Yes	-	Yes	Yes
Bluetooth, OBS411i/x	Yes (included)	Yes (included)	-	Yes	Yes
Bluetooth, OEMSPA331i/x	Yes	Yes	-	Yes	Yes
Bluetooth, OBS433i/x	Yes	Yes	-	Yes	Yes
Bluetooth, OBS414i/x	Yes	Yes	-	Yes	Yes
Bluetooth, OBI411i/x	-	-	Yes	-	-
Wireless LAN, OWS451i/x	Yes	-	-	Yes*	Yes
Wireless LAN, OWL221ai/x	-	-	-	-	-
Wireless LAN, OWL222ai/x	-	-	-	-	-
802.15.4, OZS311i/x	Yes	Yes	-	Yes	Yes
ORDER NUMBER	cB-OBS411i-04-B	cB-OBS411i-04-A	cB-OBI411i-04-A	cB-ACC-26	cB-ACC-41



WIRELESS STANDARD	Wireless LAN	Wireless LAN	Wireless LAN	Wireless LAN	
CONTENTS					
Wireless module	OWS451i	OWS451i	OWL222ai	OWL221ai / 222ai	Explanations on Table Notes 1 Diversity supported 2 Approximate maximum range 3 Via external transceiver 4 Special multipoint firmware for 3 or 7 slaves available 5 The modules are fully Bluetooth qualified for the profiles listed. FTP/OPP is however not included by default. 6 Special licensing & production requirements applies 7 SDIO drivers for WinCE 5.0/6.0 (ARM). SPI drivers for WinCE 5.0/6.0 (ARM) and Linux 2.6 (ARM). * In progress
Development/adaptor board	USB adapter	RS232 adapter	SDIO adapter	Keith&Koep µConXS	
Others	USB extension cable, documentation and configuration tools	9-pin serial cable, USB Power cable, documentation and configuration tools	WinCE 5/6 (ARM) drivers in binary code	Trizeps IV board, µConXS adapter, SDIO adapter, drivers in binary code ^{Note 7}	
COMPATIBLE MODULES					
Bluetooth, OBS410i/x	Yes	Yes	-	-	
Bluetooth, OBS411i/x	Yes	Yes	-	-	
Bluetooth, OEMSPA331i/x	Yes	Yes	-	-	
Bluetooth, OBS433i/x	Yes	Yes	-	-	
Bluetooth, OBS414i/x	Yes	Yes	-	-	
Bluetooth, OBI411i/x	-	-	-	-	
Wireless LAN, OWS451i/x	Yes (included)	Yes (included)	-	-	
Wireless LAN, OWL221ai/x	-	-	-	Yes (included)	
Wireless LAN, OWL222ai/x	-	-	Yes (included)	Yes (included)	
802.15.4, OZS311i/x	Yes	Yes	-	-	
ORDER NUMBER	cB-OWS451i-04-B	cB-OWS451i-04-A	cB-WDK-01-A	cB-WDK-03-A / 04-A	

Compatible and futuresafe

All modules share the connectBlue standard for form factor and fitting, connectors, antennas as well as configuration and control software tools



Adapter Cable
U.FL - RPSMA



2.4GHz 3cm
RPSMA antenna



2.4GHz 8cm
RPSMA antenna



Dual-band 11cm
RPSMA antenna



2.4GHz 5cm SMA
dome antenna

SPECIFICATIONS

Type	Adapter cable	¼ wave dipole	½ wave dipole	½ wave dipole	Dome antenna
Connector	U.FL and RPSMA	RPSMA	RPSMA	RPSMA	SMA
Polarization	-	Linear	Linear	Linear	Linear
Gain	-	+3 dBi	+3 dBi	+3 dBi	+3 dBi
Frequency	2.4 GHz + 5 GHz	2.4 GHz	2.4 GHz	2.4 GHz + 5 GHz	2.4 GHz
Dimensions (mm)	-	Ø12 x 28	Ø10 x 83	Ø10 x 107	Ø50 x 30
IP classification	-	-	-	-	-
Mounting	Thread and nut	RPSMA connector	RPSMA connector	RPSMA connector	SMA connector
Cable Length	12 cm	-	-	-	-
Cable Loss	Less than 0.5 dB	-	-	-	-
Suitable adapter cable	-	ACC-38	ACC-38	ACC-38	ACC-18 or ACC-48
Order number	ACC-38	ACC-61	ACC-64	ACC-53	ACC-66



2.4GHz Rectangle
u.fl. antenna



2.4GHz 3cm
u.fl. antenna



2.4GHz 7cm
u.fl. antenna



Dual-band PCB
u.fl. antenna



2.4 GHz PCB
u.fl. antenna

SPECIFICATIONS

Type	Rectangular base	¼ wave dipole	½ wave dipole	Patch antenna	Patch antenna
Connector	U.FL.	U.FL.	U.FL.	U.FL.	U.FL.
Polarization	Linear	Linear	Linear	Linear	Linear
Gain	+3 dBi	+2 dBi	+3 dBi	+3 dBi	+3 dBi
Frequency	2.4 GHz	2.4 GHz	2.4 GHz	2.4 GHz + 5 GHz	2.4 GHz
Dimensions (mm)	36 x 18 x 16	Ø9.5 x 28	Ø9.5 x 70	27 x 12	27 x 12
IP classification	-	-	-	-	-
Mounting	2 x 3 mm screws	Thread and nut	Thread and nut	Adhesive	Adhesive
Cable Length	7 cm	9 cm	9 cm	10 cm	10 cm
Cable Loss	-	-	-	-	-
Suitable adapter cable	Not required	Not required	Not required	Not required	Not required
Order number	ACC-67	ACC-63	ACC-60	ACC-55	ACC-57

Maximum throughput and robustness ready to embed

For nearly a decade, connectBlue has helped some of the world's most demanding brands to exploit the new possibilities of wireless technology. By applying a connectBlue wireless mindset, and by adapting that to their specific environment, companies achieve improved productivity, logistics and safety. Now comes the next phase in the wireless revolution: the demand for greater data throughput and reliability. All modules presented in this folder comply with connectBlue quality standards with outstanding performance in range, data capacity and field proven robustness.

connectBlueTM

*The strongest connection in a **wireless** world*

HEAD OFFICE: connectBlue AB | Norra Vallgatan 64 3V | SE-211 22 Malmö | Sweden | Phone +46 40 630 7100 | Fax +46 40 23 7137
US OFFICE: connectBlue Inc. | 200 E. 5th Avenue Suite 124 | Naperville, IL 60563 | USA | Phone +1 312 927 5859 | Fax +1 312 277 3209
GERMAN OFFICE: connectBlue GmbH | Raiffeisenstrasse 19 | DE-85276 Pfaffenhofen | Germany | Phone +49 8441 786 4160 | Fax +49 8441 786 4161
info@connectblue.com | us-info@connectblue.com | www.connectblue.com

Printed in Sweden. ©2011 connectBlue AB. All rights reserved. All specifications are subject to change without notice. The connectBlue word mark and logo are owned by connectBlue AB. The Bluetooth word mark and logos are owned by the Bluetooth SIG, Inc. and any use of such marks by connectBlue is under license.