Express BLE+
User Manual
Revision 1.9

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NOTICE TO READERS

This document contains proprietary
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SMART WAVE TECHNOLOGIES CORP.

CONFIDENTIAL

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PRODUCT DESCRIPTION

The Express BLE+ is a BLE 5 module that supports BLE Coded PHY and 2M.

PRODUCT INSTALLATION

The Express BLE+ is intended to be installed in a plastic housing and ultrasonically welded to provide complete protection from the various installation environments. A ER14505H battery must be connected to the Express BLE+ before installation into plastic housing

PRODUCT OPERATION

Once powered, the device will advertise for 30 seconds before going to sleep. Tapping the sensor pad a few times will wake the device up and it will again advertise for 30 seconds before going back to sleep. This operation will happen for devices that are unregistered (Factory Mode).

For devices that are registered and installed in the field, the device will continually advertise.

PRODUCT SPECIFICATION

Electrical Specifications

Parameter	Min	Typical	Max	Unit
Operating Voltage	2.4	-	3.6	VDC
Operating Current	0.035	.05	125	mA
Sleep Current	9	-	13	uA

Radio Specifications

Parameter	Min	Typ	Max	Unit
RF Output Power		14		dBm
Operating Frequency	2402	-	2480	MHz
RF Output Impedance	-	50	-	Ohm

Antenna Information

The device is equipped with a fixed ¼ wave monopole antenna, which is the only antenna intended and certified to be used on the device.

Manufacturer	SmartWave Technoloiges
Type	¼ Wave Monopole
Model	ANT-B001-0001F-001
Frequency Range	2400 MHz-2480 MHz
Peak Gain (dBi)	1.49

REGULATORY INFORMATION

CANADA
ISED Regulatory Statements
IC: 24934-E04003A

ISED non-interference disclaimer
This device contains license-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's license-exempt RSS(s). Operation is subject to the following two conditions:
(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
1) L'appareil ne doit pas produire de brouillage;
2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

RF Exposure statement
This equipment complies with ISED RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm (7.9 inches) between the radiator and any part of your body. This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Cet équipement est conforme aux limites d'exposition aux radiations ISED CNR-102 établies pour un environnement non contrôlé. Une distance de séparation d'au moins 20 cm doivent être maintenue entre l'antenne de cet appareil et toutes les personnes. Lanceurs ou ne peuvent pas coexister cette antenne ou capteurs avec d'autres.

OEM Responsibilites to Comply with ISED Regulations
The Express BLE+ module has been certified for integration into products only by OEM integrators under the following conditions:

• The transmitter module must not be co-located or operating in conjunction with any other antenna or transmitter.

As long as the above condition is met, further transmitter testing will not be required. However, the OEM integrator is still responsible for testing their end-product for any additional compliance requirements required with this module installed (for example, digital device emissions, PC peripheral requirements, etc.)

IMPORTANT NOTE

In the event that these conditions cannot be met (for certain configurations or co-location with another transmitter), then the ISED authorization is no longer considered valid and the IC ID cannot be used on the final product. In these circumstances, the OEM integrator will be responsible for re-evaluating the end product (including the transmitter) and obtaining a separate ISED authorization.

Responsabilités des OEM pour une mise en conformité avec le Règlement du Circuit Intégré

Le module Express BLE+ a été approuvé pour l'intégration dans des produits finaux exclusivement réalisés par des OEM sous les conditions suivantes:

• L'antenne (s) doit être installée de sorte qu'une distance de séparation minimale indiquée ci-dessus soit maintenue entre le radiateur(antenne) et toutes les personnes avoisinante, ce à tout moment.

• Le module émetteur ne doit pas être localisé ou fonctionner avec une autre antenne ou un autre transmetteur que celle indiquée plus haut.

Tant que les deux conditions ci-dessus sont respectées, il n'est pas nécessaire de tester ce transmetteur de façon plus poussée. Cependant, il incombe à l'intégrateur OEM de s'assurer de la bonne conformité du produit fini avec les autres normes auxquelles il pourrait être soumis de fait de l'utilisation de ce module (par exemple, les émissions des périphériques numériques, les exigences de périphériques PC, etc.).

REMARQUE IMPORTANTE

ans le cas où ces conditions ne peuvent être satisfaites (pour certaines configurations ou co-implantation avec un autre émetteur), l'autorisation ISEDC n'est plus considérée comme valide et le numéro d'identification ID IC ne peut pas être apposé sur le produit final. Dans ces circonstances, l'intégrateur OEM sera responsable de la réévaluation du produit final (y compris le transmetteur) et de l'obtention d'une autorisation ISEDC distincte.

OEM User Manual Instructions

User manuals for license-exempt radio apparatus shall contain the following text, or an equivalent notice that shall be displayed in a conspicuous location, either in the user manual or on the device, or both:

NOTE: The following text can only be used after OEM integrator has demonstrated that final product complies with the unintentional emissions requirements.

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

(1) This device may not cause interference.
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le manuel d'utilisation des appareils radio exempts de licence doit contenir l'énoncé qui suit, ou l'équivalent, à un endroit bien en vue dans le manuel d'utilisation ou sur l'appareil, ou encore aux deux endroits.

REMARQUE : Le texte suivant ne peut être utilisé qu'après que l'intégrateur OEM a démontré que le produit final est conforme aux exigences en matière d'émissions involontaires.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) L'appareil ne doit pas produire de brouillage;
(2) L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

End Product Labeling

The Express BLE+ module is labeled with its own IC ID. If the IC ID is not visible when the module is installed inside another device, then the outside of the device into which the module is installed must also display a label referring to the enclosed module. In that case, the final end product must be labeled in a visible area with the following:

"Contains Transmitter Module IC: 24934-E04003A"
Or
"Contains IC: 24934-E04003A"

The OEM integrator has to be aware not to provide information to the end user regarding how to install or remove this RF module or change RF related parameters in the user manual of the end product.

Étiquetage des produits finis
Les modules Express BLE+ sont étiquetés avec leur propre ID IC. Si l'ID IC n'est pas visible lorsque le module est intégré au sein d'un autre produit, cet autre produit dans lequel le module est installé devra porter une étiquette faisant apparaitre les référence du module intégré. Dans un tel cas, sur le produit final doit se trouver une étiquette aisément lisible sur laquelle figurent les informations suivantes:

“Contient le module transmetteur: 24934-E04003A”
or
“Contient le circuit: 24934-E04003A”

L'intégrateur OEM doit être conscient qu’il ne doit pas fournir, dans le manuel d’utilisation, d'informations relatives à la façon d'installer
ou de d’enlever ce module RF ainsi que sur la procédure à suivre pour modifier les paramètres liés à la radio.

USA
FCC Regulator Statements
FCC: 2ASYW-E04003A

The Express BLE+ module comply with Part 15 of the FCC rules and regulations.
Compliance with the labeling requirements, FCC notices and antenna usage guidelines is required.

The Express BLE+ module complies with Part 15 of the FCC rules and regulations. Compliance with the labeling requirements, FCC notices and antenna usage guidelines is required.
To fulfill FCC Certification, the OEM must comply with the following regulations:

(1) The system integrator must ensure that the text on the external label provided with this device is placed on the outside of the final product.
(2) Express BLE+ module may only be used with antennas that have been tested and approved for use with the modules.

OEM Labelling Requirements
As an Original Equipment Manufacturer (OEM) you must ensure that FCC labeling requirements are met. You must include a clearly visible label on the outside of the final product enclosure that displays the following content:

"Contains Transmitter Module FCC ID: 2ASYW-E04003A "

Or

"Contains FCC ID: 2ASYW-E04003A"

Any changes or modifications not expressly approved by SmartWave Technologies could void the user's authority to operate this equipment.

FCC-approved antennas (2.4 GHz)
The Express BLE+ module can be installed using the attached antenna only.

The module is FCC approved for mobile applications. When integrated into a product, if the antenna is mounted at least 20 cm (7.87 in) from nearby persons,
the application is considered a mobile application.

RF Exposure
If you are an integrating the Express BLE+ into another product, you must include the following Caution statement in OEM product manuals to alert users of FCC RF exposure compliance:

CAUTION! To satisfy FCC RF exposure requirements for mobile transmitting devices, a separation distance of 20 cm or more should be maintained between the antenna of this device and persons during device operation. To ensure compliance, operations at closer than this distance are not recommended. The antenna used for this transmitter must not be co-located in conjunction with any other antenna or transmitter.

FCC notices
IMPORTANT : This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation.

IMPORTANT: The Express BLE+ modules has not been certified by the FCC for use (integrated) with other radio products. The customer integrating the Express BLE+ module is responsible for the FCC certifications of their product.

IMPORTANT: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.
If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: Re-orient or relocate the receiving antenna, Increase the separation between the equipment and receiver, Connect equipment and receiver to outlets on different circuits, or Consult the dealer or an experienced radio/TV technician for help.

IMPORTANT: OEMs must test final product to comply with unintentional radiators (FCC section 15.107 and 15.109) before declaring compliance of their final product to Part 15 of the FCC Rules. See also the section of this user guide for information related to FCC publication 996369.

IMPORTANT: The Express BLE+ module has been certified for mobile applications. If the module will be used for portable applications, the device must undergo SAR testing. Please consult with a capable lab.

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