

# Extension Zigbee module (reference REL51044)



Extension Zigbee module (reference REL51044) is a module integrated in PowerLogic P5 which provides connection to the external modules through Zigbee Green Power protocol with the sensors located in neighborhood of PowerLogic P5.

## Technical features

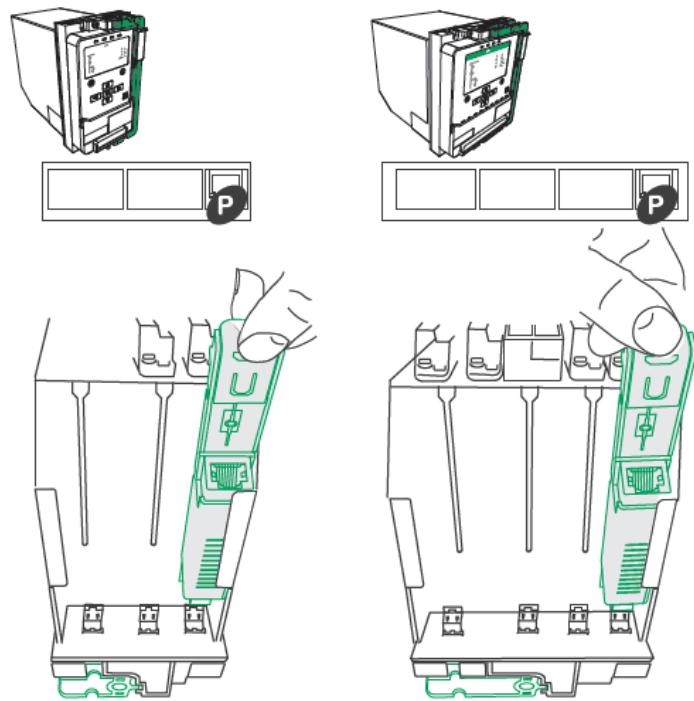
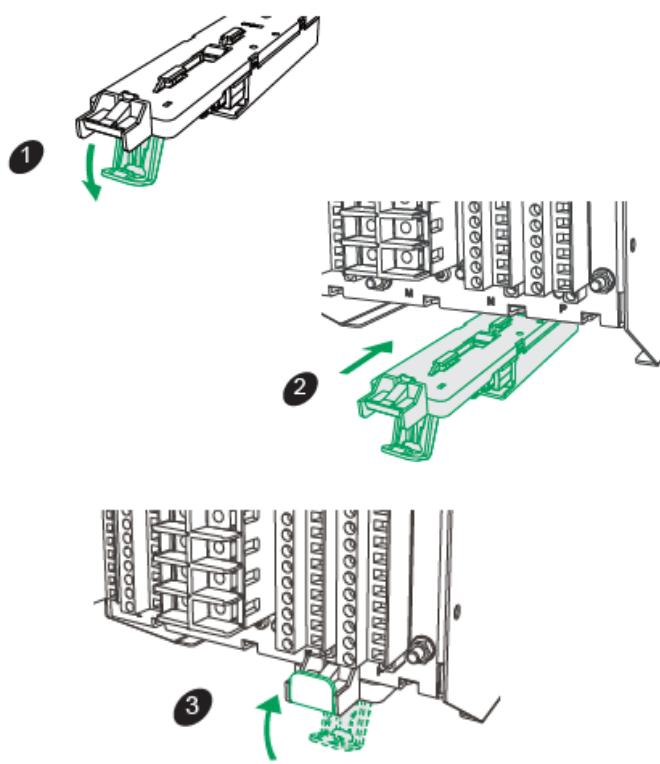
Type	Zigbee
Ref RF module	EFR32MG12
Type of wideband	DSSS
Adaptivity	No

<b>Modulation</b>	O-QPSK
<b>Frequency band</b>	2400-2483.5 MHz
<b>Number of channels</b>	16
<b>Spacing channel</b>	5 MHz
<b>Channel bandwith</b>	2 MHz
<b>Transmit chain</b>	2 chip antennas Johanson 2450AT18D0100 (1.5dBi gain) + 1 UFL connector
<b>EIRP</b>	0 dBm operation setting, <b>3 dBm</b> for certification
<b>Duty cycle</b>	Continuous duty (100%)
<b>Data rate</b>	0.25 MBps
<b>Type of equipment</b>	Stand-alone
<b>Type Power and value nominal</b>	External power supply 3,3 Vdc
<b>Temperature range of extreme operating condition</b>	-40 to +70°C
<b>Power supply range or other extreme operating condition</b>	3,3 Vdc

LabelTo



**Installation of module**



Type test result of the Zigbee module without product.

Clause		ETSI EN 300 328 V2.2.2 (2019-07)	Result	Comment
4.3.2.2	U	RF Output Power ©	PASS	
4.3.2.3	C	Power Spectral Density ©	PASS	
4.3.2.4	C	Duty cycle, Tx-Sequence,Tx-gap ©	NA	Declared RF output power < 10dBm
4.3.2.5	C	Medium Utilization ©	NA	Declared RF output power < 10dBm
4.3.2.6	C	Adaptivity	NA	Declared RF output power < 10dBm
4.3.2.7	U	Occupied Channel Bandwidth ©	PASS	
4.3.2.8	U	Transmitter unwanted emissions in the OOB domain ©	PASS	
4.3.2.9	U	Transmitter unwanted emissions in the spurious domain ©	PASS	
4.3.2.10	U	Receiver spurious emissions ©	PASS	
4.3.2.11	U	Receiver Blocking	PASS	Receiver category 2
4.3.2.12	C	Geo-location capability	NA	

©: test covered by COFRAC accreditation

#### EMF test for product with the extension Zigbee module

Electromagnetic Field (EMF) tests according to the standards: EN 62311 (2020)

The test of EMC testing for spurious emissions is made with the Zigbee module installed in PowerLogic P5.

#### TEST RESULTS – RUNNING MODE N°1

<b>Frequency Band</b>	0Hz-1Hz	<b>Verdict</b>	
<b>Field</b>	H		
<b>Maximum Level (informative)</b>	33.2 A/m		
<b>Average Level</b>	31.1 A/m		
<b>Worst Limit in Frequency Band</b>	<b>PASS</b>		
<i>RF Technology in emission mode:</i>	ZigBee		

<b>Frequency Band</b>	1Hz-400kHz	<b>Verdict</b>	
<b>Field</b>	H		
<b>Maximum Level (informative)</b>	3.1 A/m		
<b>Average Level</b>	2.1 A/m		
<b>Worst Limit in Frequency Band</b>	<b>PASS</b>		
<i>RF Technology in emission mode:</i>	ZigBee		

<b>Frequency Band</b>	1Hz-400kHz	<b>Verdict</b>
<b>Field</b>	E	
<b>Maximum Level (informative)</b>	75 V/m	
<b>Average Level</b>	34 V/m	

<b>Worst Limit in Frequency Band</b>	<b>87 V/m</b>	<b>PASS</b>
<i>RF Technology in emission mode:</i>	ZigBee	
<b>Frequency Band</b>	100kHz-6GHz	<b>Verdict</b>
<b>Field</b>	H	
<b>Maximum Level (informative)</b>	0.001 A/m	
<b>Average Level</b>	<b>0.001 A/m</b>	
<b>Worst Limit in Frequency Band</b>	<b>2 A/m</b>	
<i>RF Technology in emission mode:</i>	ZigBee	
<b>Frequency Band</b>	100kHz-6GHz	<b>Verdict</b>
<b>Field</b>	E	
<b>Maximum Level (informative)</b>	2.6 V/m	
<b>Average Level</b>	<b>1.2 V/m</b>	
<b>Worst Limit in Frequency Band</b>	<b>28 V/m</b>	
<i>RF Technology in emission mode:</i>	ZigBee	

## CONCLUSION

ElectroMagnetic Field measurement, performed on the sample of the product **JYT46620**, Sn: **EN23030030**, in configuration and description presented in this test report, show levels compliant to the **EN 62311 (2020)** and **Recommendation 1999/519/CE limits**. P5 product with Zigbee module passed EN 301489-1.

## FCC certification

The Extension Zigbee module (reference REL51044) complies with part 15 of the FCC Rules. The FCC ID is **2AHP8-JYT46620**, the IC ID is **21245- JYT46620**.

### Label requirements

If using a permanently affixed label, the modular transmitter must be labeled with its own FCC identification number, and, if the FCC identification number 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. This exterior label can use wording such as the following: "Contains FCC ID: 2AHP8-JYT46620"

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.

*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.*

Caution: the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Documentation requirements

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### Integration requirements

Here are the installation instructions to show continued compliance once installed in a host because of the lack of shielding.:

- a) This device is certified as a Limited module due to lack of shielding. As this device does not have a shield over the radio chip, additional testing and a Class II filing is required for installation in all host devices.
- b) The testing in the host must include spurious emission testing in accordance with the FCC KDB on host intergration and requirements for LMA as specified in the FCC KDB Publication 996369.
- c) Testing should include spurious emission testing and all required radiated emission testing as specified in the KDB's and done in accordance with C63.10 standard for DTS devices.
- d) Further for portable use a SAR test or SAR exclusion evaluation should be completed.

It is recommended that the device be installed in accordance with good engineering practices.

#### Test Procedure :

- 1) Requires spurious emissions test per Part 15.205 and Part 15.209
- 2) Requires Radiated Harmonics per Part 15.247
- 3) PSD per Part 15.247
- 4) MPE or SAR test or SAR exemption study

### RF Exposure for Mobile Device– Intentional radiator

This device complies with FCC RF radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

## **ISED Certification**

The Extension Zigbee module module has been tested and found compliant with the ISED RSS-210 and RSS-Gen rules. the IC ID is 21245- JYT46620.

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

- This module may not cause interference.
- This module must accept any interference, including interference that may cause undesired operation of the module.

L'émetteur 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 :

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

This device is certified as a Limited module due to lack of shielding. As this device does not have a shield over the radio chip, additional testing and a Class IV filing is required for installation in all host devices.

## **RF Exposure for Mobile device**

This device complies with ISED radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

Le présent appareil est conforme aux niveaux limites d'exigences d'exposition RF aux personnes définies par ISDE. L'appareil doit être installé afin d'offrir une distance de séparation d'au moins 20cm avec les personnes et ne doit pas être installé à proximité ou être utilisé en conjonction avec une autre antenne ou un autre émetteur.

The radio module must be labelled as follows:

IC: 21245- JYT46620.