

FLB 3205 – 4G (NA) Extension Card

INSTALLATION GUIDE

IG-0027-00 1.0 ENGLISH



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1 Preface

1.1 About This Document

This document describes the hardware of the FLB 3205 - 4G (NA) extension card which belongs to the eWON Flexy family

The eWON Flexy family is a range of modular industrial gateway/router and as its name *eWON Flexy* suggests, it has been designed to enable numerous different combinations of base units with extension cards.

For additional related documentation and file downloads, please visit www.ewon.biz/support.

1.2 Document history

Version	Date	Description
1.0	2017-10-23	First release

1.3 Related Documents

Document	Author	Document ID
eWON Flexy - Base Units	eWON CTS	IG-0014-00
Omni-directional antenna 4G - 3G - 2G	eWON CTS	KB-0274-00

1.4 Trademark Information

eWON® is a registered trademark of HMS Industrial Networks SA. All other trademarks mentioned in this document are the property of their respective holders.

2 Product Summary

The present Installation Guide is focusing on the FLB 3205 - 4G (NA) extension card which, as such, needs to be inserted in one of the Flexy base units to work.

The base units have their own Installation Guide which can be found in the [Related Documents](#), [p. 3](#).

This guide also addresses shortly how the extension cards integrate the base units as well as some recommendations on how to mount them. See [Base Unit Slot Compatibility](#), [p. 10](#) for more details.

3 Safety, Environmental & Regulatory Information

3.1 Scope

The present heading addresses Safety, Environmental & Regulatory Information about the FLB 3205 - 4G (NA) extension card.

This extension card belongs to the same compliance frame than the base units. In the present case of a telecommunication extension card, additional directives, standards and instructions apply.

3.2 ESD Damage Prevention



Always use ESD precautions when handling extension cards and / or opened base unit as they contain parts and assemblies susceptible to be damaged by electrostatic discharge (ESD).

The extension card described in this document is a module exposing both sides of an electronic printed circuit board. Therefore, it is packed in an antistatic ESD bag. In order to avoid ESD damage, the product must be handled with the necessary precaution including:

- Grounded ESD protective work surface
- Personnel grounding

3.3 Applicable Directives, Standards and Compliances

The FLB 3205 extension card complies with the FCC regulations related to the wireless modems.

The FLB 3205 extension card belongs to class A Information Technology Equipment (ITE). In a domestic environment this product may cause radio interference in which case the user may be required to take appropriate measures.

3.3.1 Applicable Safety Standards

The FLB 3205 extension card is in conformity with the following safety standards:

- IEC / EN 60950-1
- UL 60950-1
- CSA-C22.2 No 60950-1-07

3.3.2 FCC compliance

The FLB 3205 extension card complies with Part 15B, 22H, 24E and 27 of the FCC Rules. Operating is subject to the following two conditions:

- This product may not cause harmful interference
- This product must accept any interference received, including interference that may cause undesired operation.

3.3.3 Certifications

The FLB 3205 extension card has been certified by authorized bodies:

- UL Certificate of Compliance (COC) #20161219-E350576
- CB certificate # DK-53957-A1-UL

These certificates can be downloaded as PDF files on the eWON Support web site: www.ewon.biz/support

3.4 Official Modem Identification

This product contains part identified as follows by national authorities:

- FCC ID: R17LE910NAV2
- IC ID: 5131A-LE910NAV2

4 Hardware Description

4.1 Mechanical Layout and Interfaces

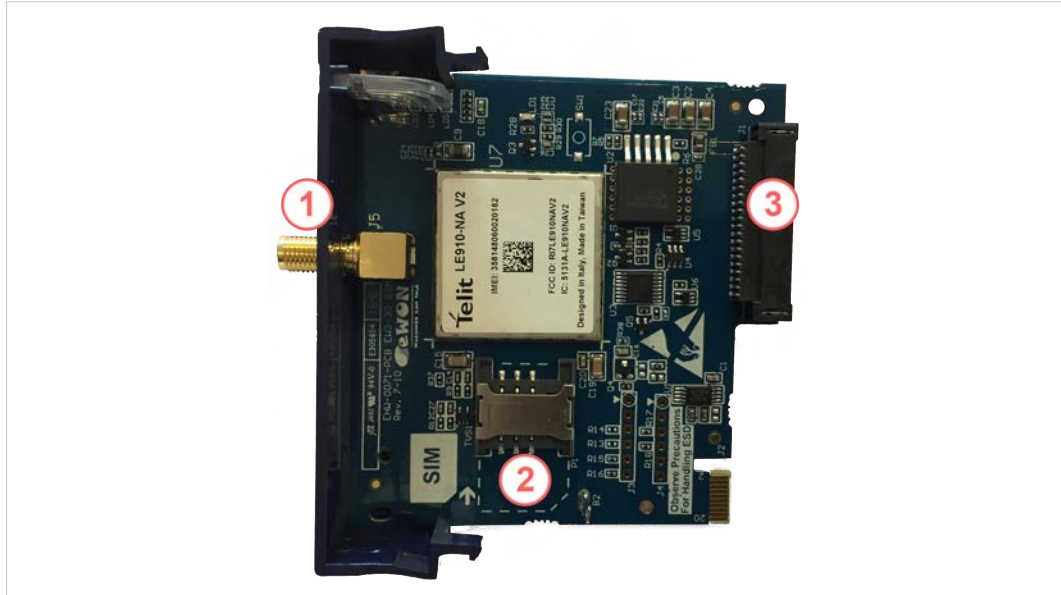


Fig. 1 Mechanical layout and interfaces

1	SMA-F Female antenna connector
2	SIM card drawer
3	Backplane connector

4.2 Extension Card Label

4.2.1 Label Location and Included Information

The identification label of the extension cards is placed on the solder side of the PCB.

The different parts of the label are described below:

Label	Description
PN	Part Number (see syntax table below)
SN	Serial Number in the form: MMMM-YYWW-SSSS-PP <ul style="list-style-type: none"> • MMMM : MTID (product related) • YYWW : Year and week • SSSS : Sequential manufacturing order • PP : Product type
Marks	CE, UL... certification number and logos if applicable



Fig. 2 FLB 3205 extension card label

4.2.2 Part Number Structure for Extension Cards

FLYXXXX_00/S				
FL	FL is the prefix for the extensions of the eWON Flexy family	Only FL (constant)		
Y	1 alphabetic sign (CAP) Defines the slots of the base module in which the extension can be inserted. See also Base Unit Slot Compatibility	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	Any slots	●●●●
XXXX_00	The FLB 3205 extension card. The suffix _00 is used for software options.			
/S	The suffix might have an optional “/” character It might also be blank or include “S” character => Indicates compliance with the UL/IEC/EN 60950 standard.			

4.3 Front Panel LEDs



Fig. 3 Front Panel Leds

Item	Mark	Function
1	STAT	Tricolor: Red / Orange / Green Green ON = Modem is online
2	■	Reception Signal level Orange ON = level > 1 (poor signal)
3	■ ■	Reception Signal level Orange ON = level > 10 (signal ok)
4	■ ■ ■	Reception Signal level Orange ON = level > 16 (good signal)



The LEDs represent only the signal level and not the type of technology used to perform a connection.

During the modem boot process, all 4 LEDs are steady orange. If they stay orange, it means the modem card was inserted in a wrong slot. This induces a base unit boot error pattern on its USB LED as well.

If all signal level LEDs are off, it either means that:

- the modem was not configured
- the modem configuration is invalid (including wrong PIN-code)
- there is no signal at all (level 0)
- there is a reception error (level 99)

4.4 Specifications of the LTE Extension Card

Item	Value(s)	
Bands & Frequencies	<ul style="list-style-type: none"> LTE – 700MHz (B12/B13/B17), 850MHz (B5), 1700MHz (B4), 1900MHz (B2) UMTS/HSUPA – 850Mhz (B5), 1900MHz (B2) 	
Tx Output Power	LTE all Bands: Class 3 (0.2W) ; WCDMA All Bands: Class 3 (0.25W)	
Antenna Connector	Type SMA-F Female	
Antenna (not included in the delivery)	Characteristic	Value(s)
	Impedance	50 Ohms
	VSWR	<= 2:1
	Input Power	> 24 dBm average power
	Tightening Torque	0.5 Nm <i>In the absence of a torque wrench, a soft manual tightening is sufficient.</i>
Device conformity has been tested with the reference antenna: Panorama B4BE-7-27		

Absolute maximum antenna gain as per FCC's rules and regulations, 47 CFR :

- 700 & 850 MHz: 6.63 dBi
- 1700 MHz: 6 dBi
- 1900 MHz: 8.51 dBi



This device is intended to be used only in fixed applications. The antenna used for this transmitter has to be installed to provide a distance of at least 20 cm from any person and may not be co-located or operating in conjunction with any other antenna or transmitter.

4.4.1 Isolation Scheme

In the Installation Guide: “eWON Flexy - Base Units” quoted in the [Related Documents](#), details on the isolation scheme of the Flexy base units and the different extension cards can be found.

4.5 eWON Flexy Extension Card Environmental Conditions

Characteristics	Value
Operating Temperature	-25 to +70°C
Storage temperature	-40 to +70°C
Relative humidity	10 to 95% non-condensing
Operating altitude	Up to maximum 2000m
Storage altitude	Up to maximum 3000m

4.6 Plugging the Extension Card into the Base Unit

4.6.1 Base Unit Slot Compatibility

The FLB 3205 extension card must be inserted in one of the “B” slots of the base unit.

The Flexy base units feature two types of slot:

- The A slots are the first two slots starting from the left.
- The B slots are the last two slots starting from the left.

Some cards fit in both A and B slots. Others don't and fit only in one of the slot types.



Fig. 4 Slot position on Flexy



Cards that fit only in one slot type have a mechanical mistake-proof security.

The reference code of the extension cards includes a letter defining their compatibility either with “A” slots, “B” slots or both:

- FLA xxxx : designates cards that fit into “A” slots
- FLB xxxx : designates cards that fit into “B” slots
- FLX xxxx : designates cards that fit into both “A” and “B” slots

In addition to the card reference, each type of extension card bears a visual compatibility symbol on its front panel. The visual symbols are shown in the table below:

●●○○	2 first slots only (A)
●●●●	In any slot (X)
○○●●	2 last slots only (B)

4.7 Extension Card Insertion

4.7.1 How to Insert into the Flexy Base Unit

Please wait 30 seconds after powering off the equipment before inserting (or removing) an extension card. This is to avoid possible damage to the base unit and extension card.

Remove the slot filler of the location you want to insert the new card in. To do so, press on **both** ends of the cover. Note that the hooks are off-centered like shown on the pictures.

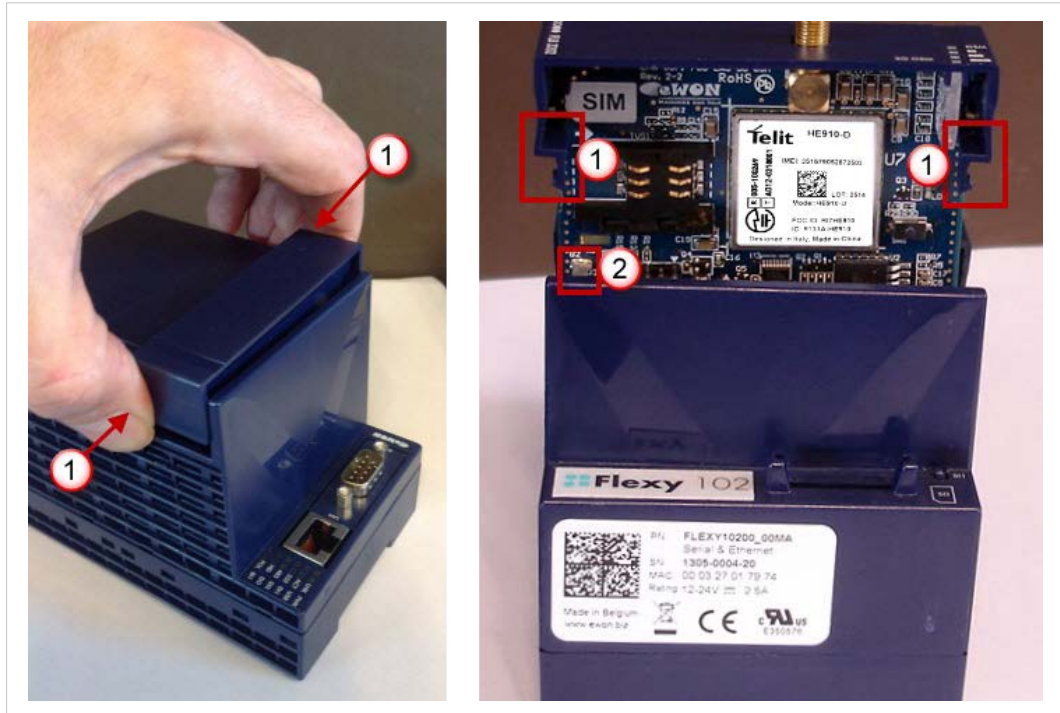


Fig. 6 Remove the slot fillers

1	Hooks to be pressed are off-centered. Press while pulling upwards
2	This metal tag soldered on the PCB acts as mistake-proof security (mating stop in housing)

Insert the extension card carefully and slide it down until the hooks are **clicking**. Make sure the card is completely inserted.

DO NOT insist if you feel any resistance when trying to insert the card. It probably means you are trying to insert the card in a wrong slot type. In such case, check slot compatibility of the relevant extension card.



*If an extension card is inadvertently forced in a wrong slot, the base unit will detect the misplaced card and will **not** complete its boot process. Therefore, the unit will not be accessible through its LAN interface. The slot error is returned by the USR LED. (red ON 1 sec, OFF 0.5 sec).*

4.7.2 Multiple FLB 3205 extension cards

The Flexy firmware currently supports up to **one** FLB 3205 extension card.

The boot process of the base unit includes an automated detection of the inserted extension cards. This detection is done sequentially, slot per slot starting from the left to right.

Only the first FLB 3205 extension card detected (the most left one) will be taken in consideration by the eWON firmware. An additional card of the same type will be ignored.

Contrary to what happens when it is inserted in a wrong slot, the FLB 3205 extension card in excess will not alter proper operation of the base unit and other extension cards.

4.7.3 Power Requirements

The internal power converter of the Flexy base units has been dimensioned to cover a broad range of different combinations of extension cards. Users should make sure the total power demand of the extension cards does not exceed the capabilities of the base unit. That is why the notion of “Energy Points” has been introduced.

The Installation Guide “[eWON Flexy - Base Units](#)” includes a section giving the **Available Energy Points** of each type of base unit.

The power requirements of each extension card is expressed in **Energy Demand Points**. This number is meant to check whether the balance with the **Available Energy Points** of a given base unit with extension cards is OK or not.

The Energy Demand Points of the FLB 3205 extension card is 8

The Installation Guide of the “[eWON Flexy - Base Units](#)” also includes examples of practical power balance calculations.

5 Powering on the Base Unit with its Extension Cards

When the base unit is powered on, it takes approximately 25 seconds for the unit to go through its self-test procedure. The slots in which the extension cards have been inserted and their type are detected during this process.

If the boot process completes normally, you should observe the following LED status

- Base unit : **USR** LED flashing green slowly
- Extension card : None



If the **USR** LED of the base unit is flashing red, it might be because the extension card was improperly inserted (for example in a wrong slot).

6 Check Card Detection on the Embedded Web Page

The Flexy extension cards require no software configuration. They are automatically detected by the base unit when the device boots.

6.1 Connecting to the Embedded Web Server

On the computer used to reach the web pages, configure the network parameters in such way that it is located in the same IP range that the LAN of the eWON device.

Once both devices are in the same IP range, connect the PC to one of the LAN port of the eWON device.

Open an Internet browser and access the homepage of the eWON device by typing the LAN IP address in the URL field (the default address is <http://10.0.0.53>).

A dialog box will pop-up asking for credentials. Default ones are:

- login: adm
- password: adm



For security reasons, changing the default password *adm* is an absolute requirement. To change it, from the menu bar, click on **Configuration > Users Setup** and double click on the *adm* entry to edit and save its password.

6.2 Detected Cards Displayed in the System Page

Once connected to the embedded web pages of the eWON device, go to the **System** page which allows the verification of the system's status including detected extension cards. To access the system status summary, click on **Diagnostic > Status > System Info > System**.

6.3 Modem Information Displayed in the Information Page

Extended information about the modem - including manufacturer, type and modem firmware version - is available in the **Info** page. The path to the **Info** page is: **Diagnostic > Status > System Info > Info**.

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A Antenna Information

For more general & technical information concerning the antenna that can be combined with the FLB 3205 extension card, refer to the Knowledge Base: “Omni-directional antenna 4G - 3G - 2G” quoted in the [Related Documents, p. 3](#).

