MACHINES CAN TALK

Installation Guide

IG 019 / Rev. 1.4

eWON Flexy 3G GSM Extension Card FLB 3202

This installation guide explains how to install the eWON Flexy 3G GSM Extension Card FLB 3202.

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1. Product Summary

The present Installation Guide describes the hardware of the ***3G GSM Extension Card FLB 3202*** of the eWON Flexy family.

The eWON Flexy family is a range of modular industrial gateway/router.

As the name eWON Flexy suggests, it has been designed to enable numerous different combinations of ***Extension Cards*** *and* ***Base Units***. The present Installation Guide is focusing on an extension card which, as such, needs to be inserted in one of the Base Units in order to work. The Base Units have their individual Installation Guide IG-014-0-EN "eWON Flexy - Base Units". The present guide addresses shortly how the Extension Cards integrate the Base Units and we give some recommendations to mount them (see § 3.6 Plugging the Extension Card into the Base Unit).

2. Safety, Environmental & Regulatory Information

2.1. Scope

The present heading addresses Safety, Environmental & Regulatory Information for the 3G GSM Extension Card FLB 3202. This Extension Card is basically belonging to the same compliance frame than the Base Units. In the present case of a telecommunication Extension Card, additional directives, standards and instructions apply.

2.2. ESD Damage Prevention

- Important -

Contains parts and assemblies susceptible to damage by electrostatic discharge (ESD). Always use ESD precautions when handling Extension Cards and the opened Base Unit.

The Extension Card described in the present Installation Guide is a module exposing both sides of an electronic printed circuit board. Therefore, it is packed in antistatic ESD bags. In order to avoid ESD damage, the product must be handled with the necessary precaution including:

- Grounded ESD protective work surface
- Personnel grounding

2.3. Applicable Directives, Standards and Compliance

The Extension Card described in the present Installation Guide complies with the Radio Equipment Directive (RE-D) 2014/53/EU and the FCC regulations related to the wireless modems.

The Extension Card described in the present Installation Guide 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.

2.3.1. Applicable European Directives

The Extension Card described in the present Installation Guide is in conformity with the following EC directives:

- RoHS Directive 2011/65/EU
- EMC Directive 2014/30/EU
- RE directive 2014/53/EU(*)

(*) When applicable, the product conforms to the corresponding RE-D articles:

RF spectrum efficiency, Art 3(2); EMC, Art. 3(1)(b); Safety, Art. (3)(1)(a)

2.3.2. Applicable Safety Standards

The Extension Card described in the present Installation Guide is in conformity with the following safety standards:

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

2.3.3. FCC Compliance

The Extension Card described in the present Installation Guide complies with Part 15, 22H, 24E and 27 of the FCC Rules. Operating is subject to the following two conditions:

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

2.3.4. Certifications

The Extension Card described in the present Installation Guide has been certified by authorized bodies:

- UL Certificate of Compliance (COC) # 20160502-E350576
- CB certificate # DK-53957-UL

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

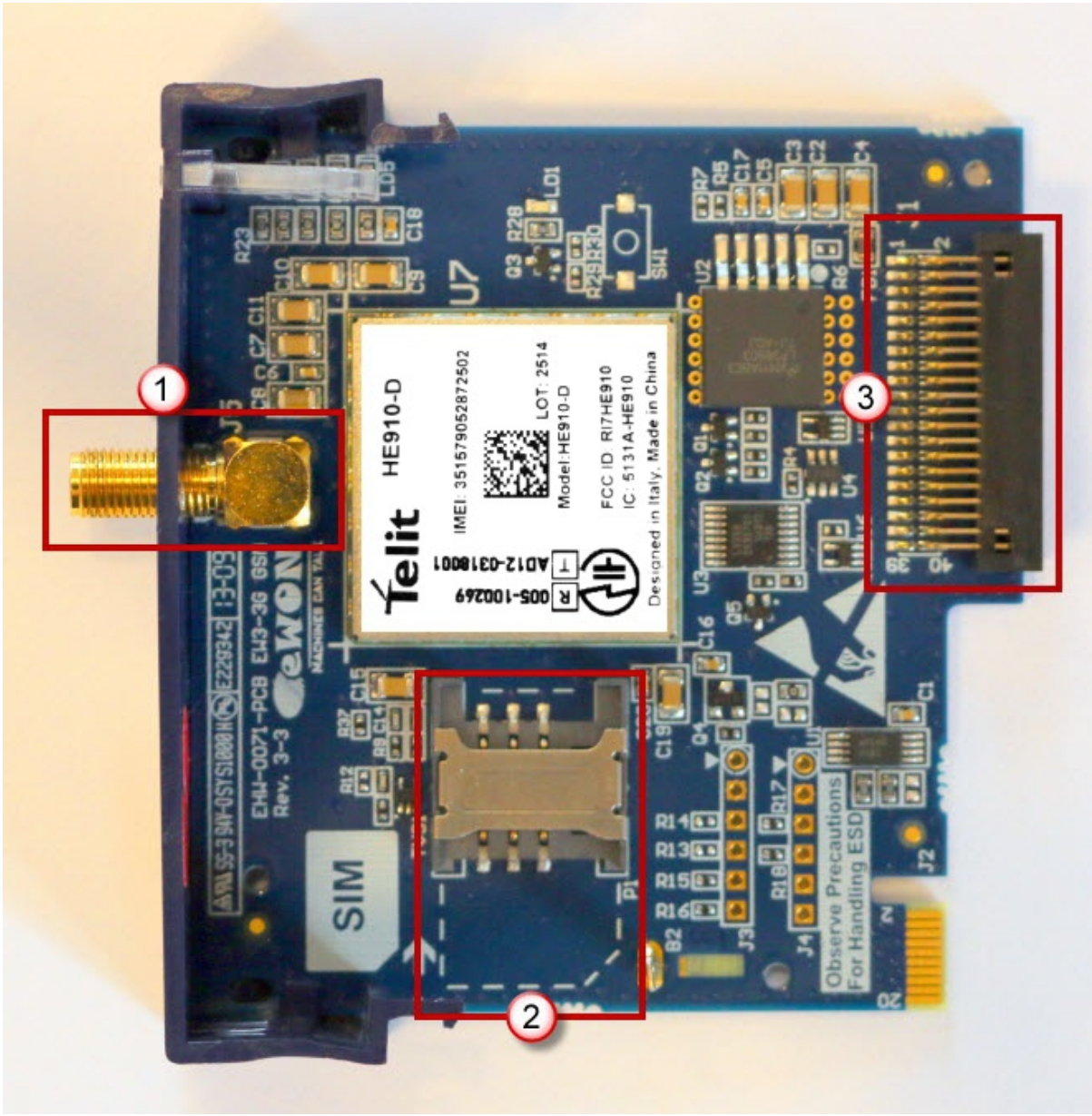
2.4. Official Modem Identification

This product contains part identified as follows by national authorities:

- FCC ID: RI7HE910
- IC ID: 5131A-HE910
- GITEKI (MIC) ID: 005-100269
- JATE ID: AD12-0318001

3. Hardware Description

3.1. Mechanical Layout and Interfaces



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

3.2. Extension Card Label

3.2.1. Label Location and Information Included

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:

PN	**Part Number:** identifies the type of the card. Description see 3.2.2 Part Number Structure for Extension Cards
SN	Serial Number Structure of the Serial Number 1111-2233-0001-44 1111 = MTID (product related) 2233 = Year Week 0001 = sequential mfg order 44 = product type
Marks	CE, UL,... certificate number and logos if applicable.
0682	Notified Body Number warrantor of the CE Mark validation

3.2.2. Part Number Structure for Extension Cards

FLB3202_00/S				
FL	FL is the prefix for the extensions of the eWON Flexy family	Only FL (constant)		
B	1 alphabetic sign (CAP) Defines the slots of the base module in which the extension can be inserted. See also § 3.6.1 Base Unit Slot Compatibility	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	In any slot	●●●●
3202_00	3G GSM 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.			

3.3. Front Panel LEDs

Item	Mark	Function	Picture
①	GSM	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 is OK	
④	▮	Reception Signal level Orange ON = level >16 Good signal	

- Note -

During the modem boot process all 4 LEDs are going ON ORANGE. If they stay ORANGE it means the modem card was insterted in a wrong slot (inducing a Base Unit boot error on its USR LED as well).

If all signal level LED's are OFF, either:
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).

3.4. Specifications of the 3G GSM Extension Card

<table>
<tr><th>Item</th><th colspan="2">Value(s)</th></tr>
<tr><td>Protocols and Frequencies</td><td colspan="2">GSM/GPRS/EDGE - 850, 900, 1800, 1900 MHz
UMTS/HSUPA - 800/850, 900, AWS1700, 1900, 2100 MHz</td></tr>
<tr><td>Class</td><td colspan="2">5 band GPRS/EDGE Class 33</td></tr>
<tr><td>Antenna Connector</td><td colspan="2">Type SMA-F Female</td></tr>
<tr><td rowspan="5">Antenna
(not included in the delivery)</td><td>Charact.</td><td>Value(s)</td></tr>
<tr><td>Range</td><td>Depending on frequency band(s) provided by the network operator, the customer shall use the most suitable antenna for that/those band(s).</td></tr>
<tr><td>Impedance</td><td>50 Ohms</td></tr>
<tr><td>VSWR</td><td><= 5:1 Absolute max. to avoid permanent damage
<= 2:1 Limit to fulfill all regulatory requirements</td></tr>
<tr><td>Input Power</td><td>> 33 dBm (2W) peak power in GSM
> 24 dBm average power in WCDMA</td></tr>
<tr><td></td><td>Tightening Torque</td><td>0.5 Nm. In the absence of a torque wrench, a soft manual tightening is sufficient.</td></tr>
</table>

Device conformity has been tested with the reference antenna: Taoglas TG.09.0113

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

- *Part 22H : 5.22dBi*
- *Part 27 : 3.31dBi*
- *Part 24E : 6.45dBi*

- Important -

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.

3.5. eWON Flexy Extension Cards Environmental Conditions

Characteristic	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

3.6. Plugging the Extension Card into the Base Unit

3.6.1. Base Unit Slot Compatibility

The 3G GSM Extension Card (FLB 3202) must be inserted in one of the "B" slots of the Base Unit.

Explanation:

The Flexy Base Units feature two type of slots. The A slots are the two first slots starting from the left. The B slots are the two last slots. Some cards fit in A and B slots. Some not. Cards that fit only one type of slot have a mechanical mistake-proof security.

The reference code of the Extension Cards includes a letter that defines their compatibility either with "A" slots, "B" slots or both:

- FL**A** xxxx - designates cards that fit into "A" slots
- FL**B** xxxx - designates cards that fit into "B" slots
- FL**X** xxxx - designates cards that fit into both "A" and "B" slots

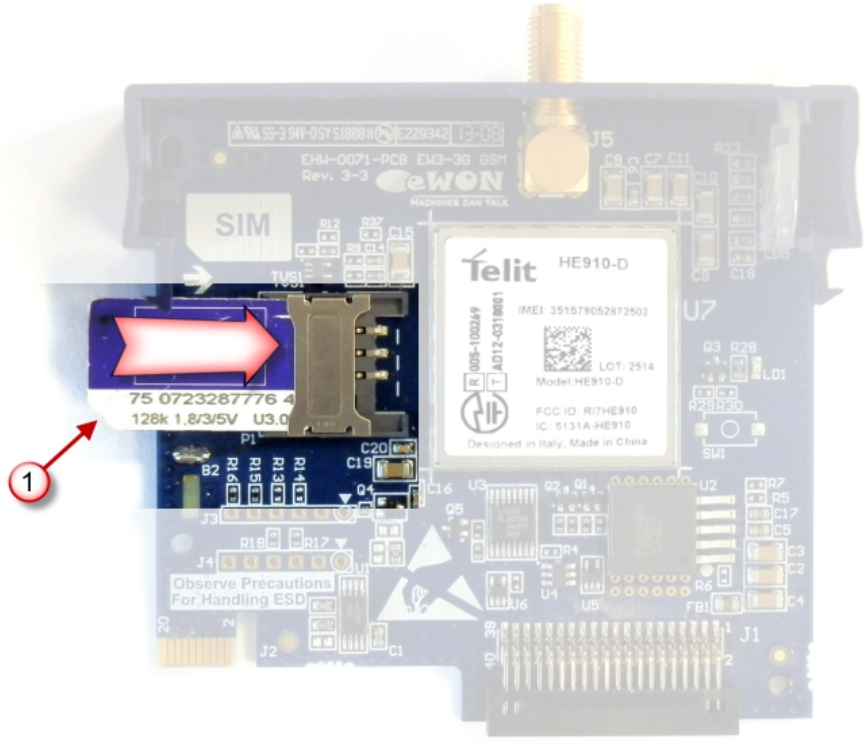
In addition to the card reference, each type of extension card bears a visual compatibility symbol on its front panel. The visual symbols are shown in the table below:

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

3.6.2. SIM-Card Insertion

A SIM-card obtained from a wireless phone provider is necessary to communicate through the 3G GSM Extension Card. It should be inserted before inserting the Extension Card in the Base Unit because there is no external access to the SIM-card holder.

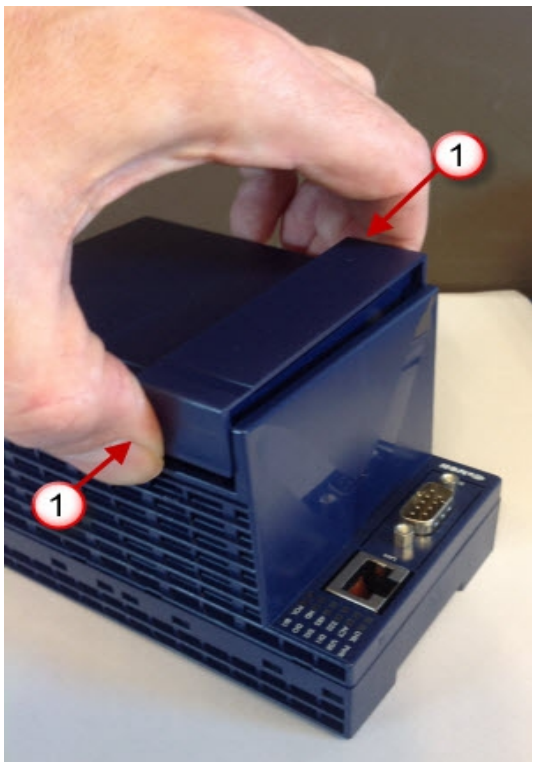
The SIM-card holder is located at the components side of the Extension Card. Carefully slide the SIM-card in the holder as shown in the picture below. Make sure the card is fully inserted against its arrest, otherwise it could damage both the drawer and the SIM-card when the Extension Card will be inserted in the Base Unit. Note the position of the cutoff (1) of the SIM-card.

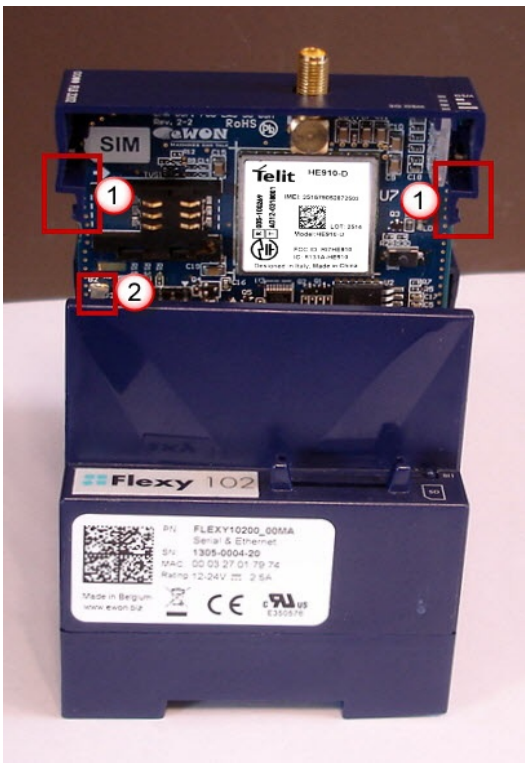


3.7. Extension Card Insertion

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 where you want to insert the new card. To do this, press on both ends of the cover, note that the hooks are out-centered like shown on the pictures.





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 some resistance when trying to insert the card. It probably means you are trying to insert the card in a wrong slot. In such case, check slot compatibility of the relevant Extension Card.

- Note -

Would an extension card be inadvertently forced in a wrong slot, the Base Unit will detect it 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 1sec, OFF 0.5 sec).

3.7.1. Multiple 3G GSM Extension Cards

The eWON Flexy firmware currently supports up to **one** 3G GSM Extension Card of type FLXB3202.

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 detected 3G GSM card (the most left one) will be taken into account by the Flexy firmware. An additional card of the same type will be ignored. Contrary to what happens when it is inserted in a wrong slot, a 3G GSM card in excess will not alter proper operation of the Base Unit and other Extension Cards.

3.7.2. Power Requirements

The internal power converter of the eWON 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 IG-014-0-EN "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.

	3G GSM Extension Card FLB 3202
Energy Demand Points	10

The Installation Guide IG-014-0-EN "eWON Flexy - Base Units" includes examples of practical power balance calculations.

4. 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** flashing green slowly
- Extension Card None

- Note -

Would the USR LED of the Base Unit be flashing RED, it might be because the Extension Card was improperly inserted (for example in a wrong slot).

5. Check Card Detection on the Embedded Web Page

The eWON Flexy Extension Card requires no software configuration. It is automatically detected by the Base Unit when it boots.

5.1. Connecting to the Embedded Web Server

Configure the network parameters of your configuration PC to encompass the IP range of the eWON LAN.

Connect the PC to one of the LAN port of the eWON Flexy.

Open your Internet browser and access the eWON Flexy internal Web page by entering the LAN IP address in the URL field (the default address is http://10.0.0.53).

The default

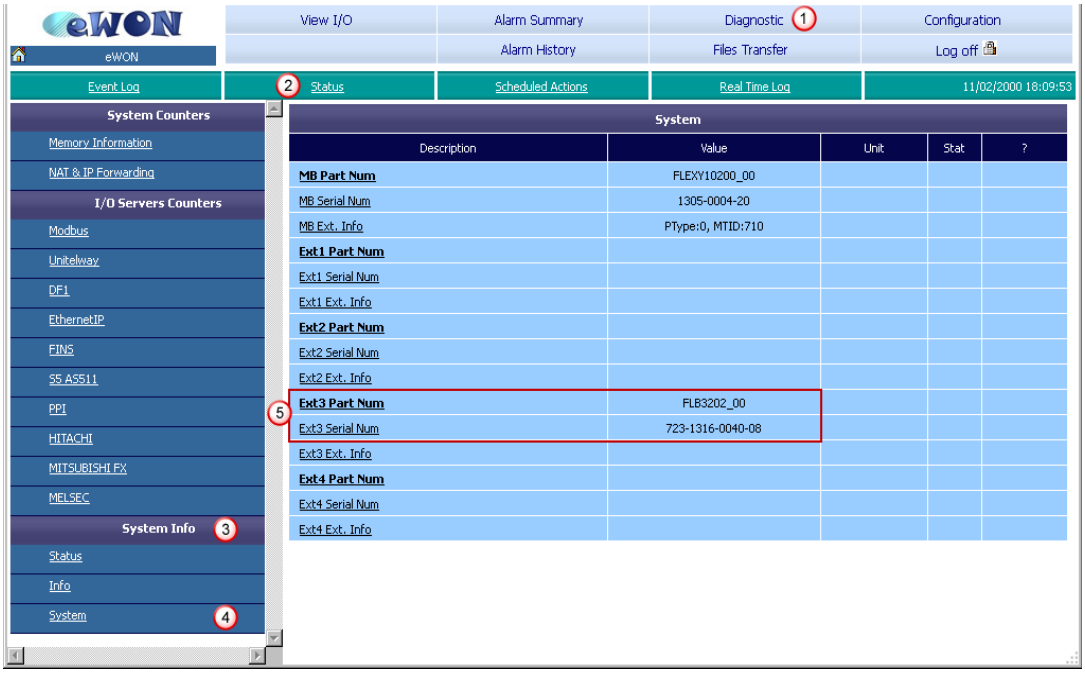
- login is adm
- password is adm

- Important -

*For security reasons, changing the default password **adm** is absolutely required.*
*To change the **adm** password, from the menu bar, click on **Configuration**, **Users Setup** and double click on the **adm** entry to edit its parameters. Enter the new password twice and click **Save**.*

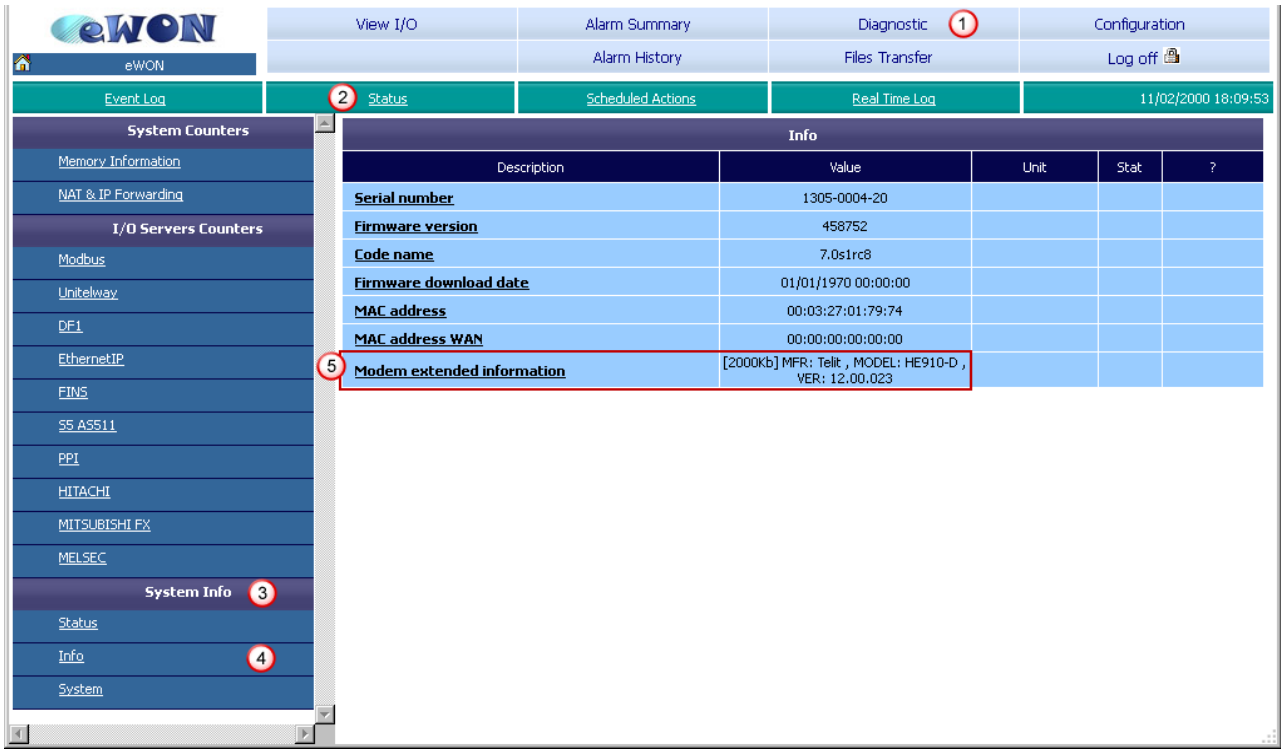
5.2. Detected Cards Displayed in the System Page

The ***System*** page allows to check the status of the system including detected Extension Cards. To access the system status summary, click on ***Diagnostic (1) > Status (2) > System Info (3) > System (4).*** The screen capture below gives an example of an FLB 3202 extension card that has been detected in slot 3 (5).



5.3. Modem Information Displayed in the Info 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 (1) >***



Status (2) > System Info (3) > Info (4).

Revision

Revision History

Revision Level	Date	Description
1.0	07/05/2013	Initial version
1.1	29/10/2013	Official product release version
1.2	12/11/2014	Changed: chapter 3.3 "Front Panel LED" Added: chapter 2.4 "Official Modem Identification"
1.3	17/11/2014	Changed: chapter 3.2 "Extension Card Label": 3G Sticker reference adapted, CE Mark Notified Body Number added
1.4	17/11/2015	Changed specifications of 3G GSM extension card
1.5	27/07/2016	Update of Legal References

Document build number: 28

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