



Installation Guide

IG 024 / Rev. 1.0

eWON Flexy USB Extension Card FLB 3601

This installation guide explains the USB Extension Card FLB3601, its characteristic and how to install it in the eWON Flexy Base Unit.



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1. Product Summary

The present Installation Guide describes the hardware of the USB Extension Card FLB 3601 of the eWON Flexy.

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 are integrated in the Base Units and some recommendations are given to mount them ([see §3.6 Plugging the Extension Card into the Base Unit](#)).

2. Safety, Environment & Regulatory Information

2.1. Scope

The present section addresses Safety, Environmental & Regulatory Information for the USB Extension Card FLB 3601. This Extension Card is belonging to the same compliance frame than the Base Units.

2.2. ESD Damage Prevention

- Caution -

The USB Extension Card FLB 3601 contains parts and assemblies susceptible to be damaged 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 anti static 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 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.

2.4. 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

2.5. 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

2.6. FCC Compliance

The Extension Card described in the present Installation Guide complies with Part 15 of the FCC Rules. Operating is subject to the following two conditions:

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

2.7. Certifications

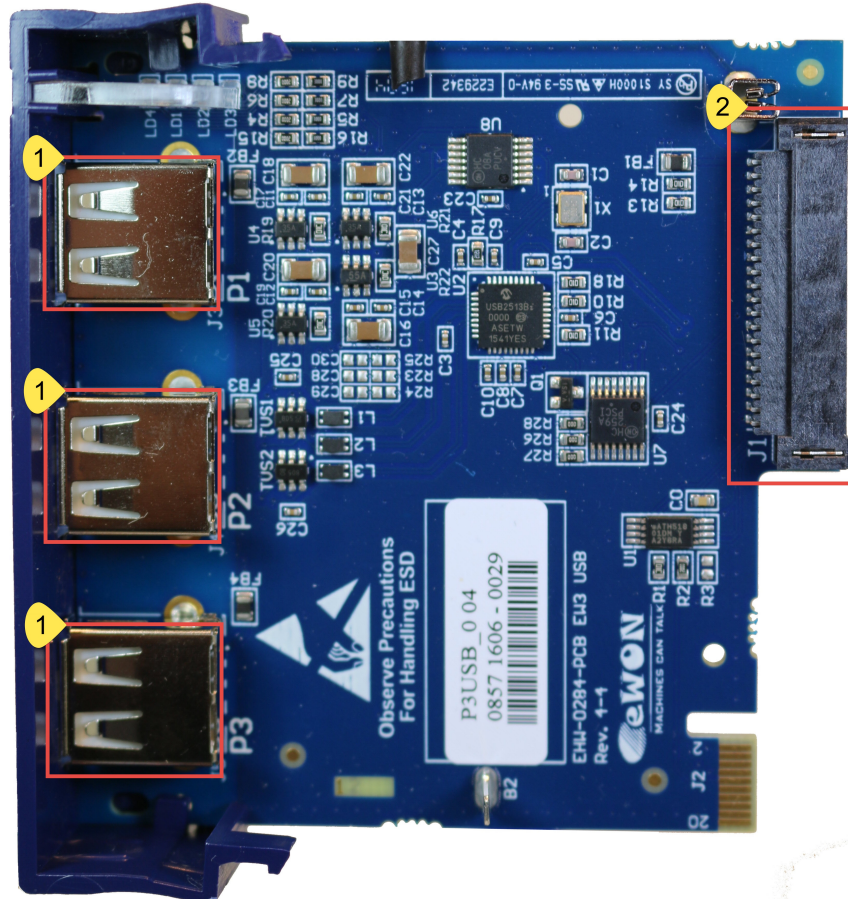
The Extension Card described in the present Installation Guide has been certified by authorized bodies:

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

These certificates can be downloaded as PDF files on the eWON Support website:
<http://ewon.biz/support/docs/flexy>

3. Hardware description

3.1. Mechanical Layout and Interfaces



1

USB connectors

2

Backplane connector

3.2. Extension Cards 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:

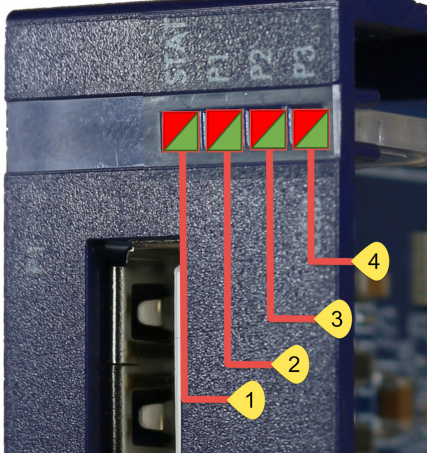


PN	Part Number: identifies the type of the card. Description see 3.2.2 Part Number Structure for Extension Cards
SN	Serial Number Structure of the Serial Number 1111-2233-0001-44 1111 = MTID (product related) 2233 = Year Week 0001 = sequential mfg order 44 = product type
Min. FW.:	Minimum required firmware version of the eWON.
Marks	CE, UL,... certificate number and logos if applicable.

3.2.2. Part Number Structure for Extension Cards

FLB 3601_00				
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 § 3.6.2 Error: Reference source not found	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	In any slot	●●●●
3601_00	USB Extension Card. The suffix _00 is used for software options.			

3.3. Front Panel LEDs status

Item	Mark	Function	Picture
1	STAT	GREEN ON when USB Card is ready RED if Card is out of current limiting (See USB Specifications)	
2	P1	Blinking GREEN when activity on USB 1 RED if USB 1 out of current limiting	
3	P2	Blinking GREEN when activity on USB 2 RED if USB 2 is out of current limiting	
4	P3	Blinking GREEN when activity on USB 3 RED if USB 3 is out of current limiting	

STAT	P1	P2	P3	Description
GREEN	OFF	OFF	OFF	Board initialization
OFF	OFF	OFF	OFF	Board not in use, USBIP disabled
GREEN	GREEN	GREEN	GREEN	USBIP enabled
RED	RED	RED	RED	Error on USB hub (see Appendix: Checking the realtime log)

3.4. USB Specifications

Item	Value(s)
Absolute maximum of total current limit	500 mA max.
Maximum current limit by USB port	500 mA max.

- Note -

earth - gnd is limited to 500V due to USB connector

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. eWON Firmware compatibility

Before inserting the Extension Card into the Base Unit, verify if the eWON Flexy is running the required firmware supporting the new extension card.

The required firmware version is indicated on the label of the Extension Card. For example: *Min. FW.: 11.2* (see [§ 3.2.1 Label Location and Information Included](#))

3.6.2. Base Unit Slot Compatibility

The **USB Extension Card** (FLB 3601) 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 first two slots starting from the left. The B slots are the last two slots. Some cards fit in A and B slots. Some do 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:

- **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)

3.6.3. 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 so, press on **both** ends of the cover, note that the hooks are off-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) |

While holding the Extension Card on **both** sides, carefully insert it in the Base Unit and slide it down until the hooks **click**. 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 -

If an Extension Card is 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).

3.6.4. Multiple USB Extension Cards

The eWON Flexy firmware supports only **a single** card of type FLB3601 (USB Extension Card).

3.6.5. Power Requirements

The internal power converter of the eWON Flexy Base units has been designed 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 are 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.

Energy Demand Points	USB Extension Card FLB 3601
	9

The Installation Guide IG-014-0-EN "eWON Flexy - Base Units" includes practical examples of 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 the Extension Cards have been inserted in and their type are detected during this process.

If the boot process completes normally, the following LED status should be observed:

- Base Unit **USR** flashing green slowly
- Extension Card None

- Note -

If the USR LED of the Base Unit flashes RED, it might be because the Extension Card was improperly inserted (for example in a wrong slot) or the Base Unit is not updated to the minimum firmware required for this Extension Card.

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 PC to match the IP range of the eWON LAN then 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 typing the LAN IP address in the URL field (the default address is <http://10.0.0.53>).

The default credentials are:

- login: adm
- password: adm

- Important -

*For security reasons, changing the default password **adm** is mandatory.*

*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)**.



Chapter 5

Check Card Detection on the Embedded Web
Page

The screenshot below gives an example of an FLB 3601 extension card that has been detected in slot 4 (5).



The screenshot shows the eWON web interface. The top navigation bar includes 'View I/O', 'Alarm Summary', 'Diagnostic', 'Alarm History', and 'Files Transfer'. Below this is a secondary bar with 'Event Log', 'Status', 'Scheduled Actions', and 'Real Time Log'. The left sidebar contains a tree view with 'System Info' selected. The main content area displays a table with the following data:

Description	Value
MB Part Num	FLEXY20100_00
MB Serial Num	1533-0179-21
MB Ext. Info	PType:0, MTID:712
Ext1 Part Num	
Ext1 Serial Num	
Ext1 Ext. Info	
Ext2 Part Num	
Ext2 Serial Num	
Ext2 Ext. Info	
Ext3 Part Num	
Ext3 Serial Num	
Ext3 Ext. Info	
Ext4 Part Num	FLB3601_00/S
Ext4 Serial Num	853-1621-0004-26
Ext4 Ext. Info	

6. eWON Configuration to work with a USB Extension Card

The “UsbIPEnable” parameter need to be correctly set in the eWON Flexy Base unit to activate the FLB3601 card detection. If the “UsbIPEnable” is not correctly set, the Flb3601 card will not be activate (all LEDs OFF on the USB card).

6.1. Software configuration parameters

Browse to Configuration > Storage > Edit Com cfg & search for “Usb”

Parameter	Original Value	Value	Changed
UsbIPEnable	0	0	
UsbIpLogLevel	2	2	
UsbIpPwd	#_1_//8=	#_1_//8=	
UsbIpStartPort	6000	6000	

Showing 1 to 4 of 4 records (filtered from 319 total records)

To enable or disable the USBIP functionality, set “UsbIPEnable” to 1 (enable) or 0 (disable). Click “SAVE”.

- Note -

The USB functionality will start or stop accordingly to the “UsbIPEnable” parameter. There is no need to restart the device to apply the new configuration.

“UsbIpLogLevel”, “UsbIpPwd”, “UsbIpStartPort” parameters are only used in advanced configuration or for debug purpose. Modification of these parameters is not recommended

6.1.1. Parameters explained

In the ComCfg edition, 4 parameters can be changed:

- UsbIPEnable: Enable or disable the USB Extension Card
- UsbIpLogLevel: Set the level of the USB log. Three levels are available (starting from general to deep) : 0, 1 or 2
- UsbIpPwd: A password can be set on the USB to protect it.
- UsbIpStartPort: The port number for USB devices the firmware should increment from.

6.2. Default values after reset.

After a reset the “UsbIPEnable” parameters will be set :

- To 1 if a USB Extension Board is plugged in the Flexy
- To 0 if a USB Extension Board is NOT plugged in the Flexy

-Warning -

Check label of Extension card for FW compatibility, the eWON Flexy Base unit must be updated to the required firmware before insertion of the FLB3601 – USB Extension card.

The eWON base unit will not boot correctly if an FLB3601 – USB Extension Card is plugged in a eWON FLEXY with a firmware version under FW 11.2



Appendix : Checking the realtime log

The real time log will show when the USBIP service is started / stopped:

31/05/2016 10:06:08	USBIP	Start the USB interface
31/05/2016 10:06:08	USBIP	Registration successful
31/05/2016 10:06:08	USBIP	Enter the license key
31/05/2016 10:05:44	USBIP	Stop the USB interface
31/05/2016 10:05:42	USBIP	Config has changed

In case of error (**RED** LEDs on FLB3601 card), check the realtime log to get more information.

The "UsbIpLogLevel" parameter can be set to 2 in order to retrieve additional information in the logs.

The USB hub will only provide 500mA per port and will disconnect any device attempting to draw more. For example, some USB devices (like self-powered HDDs) draw too much current.

In that case, the LED will become RED, then GREEN again and the realtime log will show the repetitive (failed) sharing attempts:

USBIP	Unshared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Shared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Unshared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Shared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Unshared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Shared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Unshared eWON-Western_Digital-Elements_1078 [1-1.1]
USBIP	Shared eWON-Western_Digital-Elements_1078 [1-1.1]



Revision History

Revision Level	Date	Description
1.0	05/09/2016	Original Document

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