FLC 3701 - MPI Extension Card

INSTALLATION GUIDE

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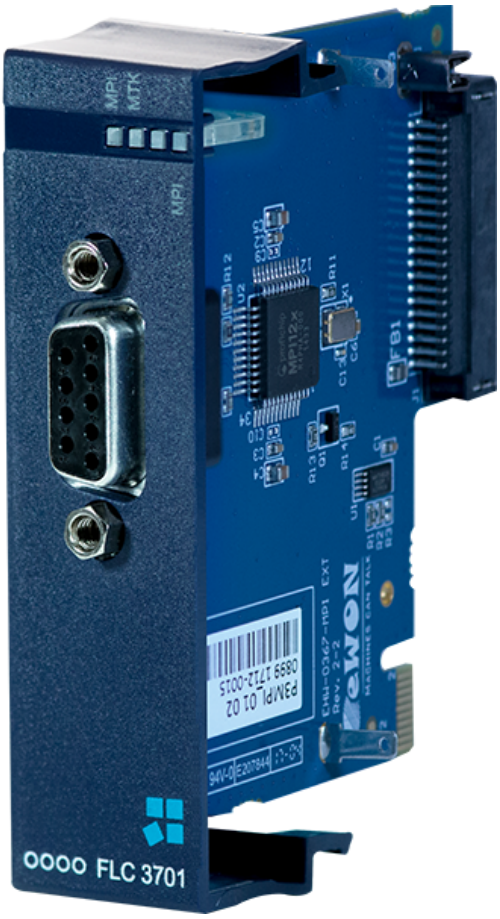

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1 Preface

1.1 About This Document

This document describes the hardware of the FLC 3701 - MPI extension card which is operational with the Ewon Flexy 205 only.

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	2018-01-19	First release
1.1	2018-02-26	Changed: *Plugging the Extension Card into the Base Unit, p. 10*
1.2	2019-09-03	Changed: *Safety, Environmental & Regulatory Information, p. 5* Changed: *Ewon Flexy Extension Card Environmental Conditions, p. 8*
1.3	2023-05-11	Changed: Certifications

1.3 Related Documents

Document	Author	Document ID
Ewon Flexy 205	HMS	IG-0028-00

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 FLC 3701 - MPI extension card which is not a standalone product and must be inserted in a Flexy 205 base unit to work.

The Flexy 205 has its own Installation Guide which can be found in the *Related Documents, p. 3*.

This guide also addresses shortly how the extension cards integrate the Ewon Flexy as well as some recommendations on how to mount them.

3 Safety, Environmental & Regulatory Information

3.1 Scope

The present heading addresses Safety, Environmental & Regulatory Information about the FLC 3701 - MPI extension card.

This extension card belongs to the same compliance frame than the Flexy 205. 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 extension card described in the present document 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 European Directives

The FLC 3701 - MPI extension card is in conformity with the following EC directives:

- RoHS Directive 2011/65/EU
- EMC Directive 2014/30/EU

3.3.2 Applicable Safety Standards

The FLC 3701 is in conformity with the following safety standards:

- IEC / EN 60950-1
- UL 60950-1
- CSA-C22.2 No 60950-1-07
- EN IEC 62368-1:2020 + A11:2020
- UL 62368-1 Third Edition, revised October 22, 2021
- CAN/CSA C22.2 No. 62368-1: 19 Third Edition, revised October 22, 2021

3.3.3 FCC Compliance

The FLC 3701 complies with Part 15 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.

3.3.4 Certifications

The FLC 3701 has been certified by authorized bodies:

- UL Certificate of Compliance (COC) # E350576-20230306
- CB certificate # DK-133387-UL

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

4 Hardware Description

4.1 Mechanical Layout and Interfaces

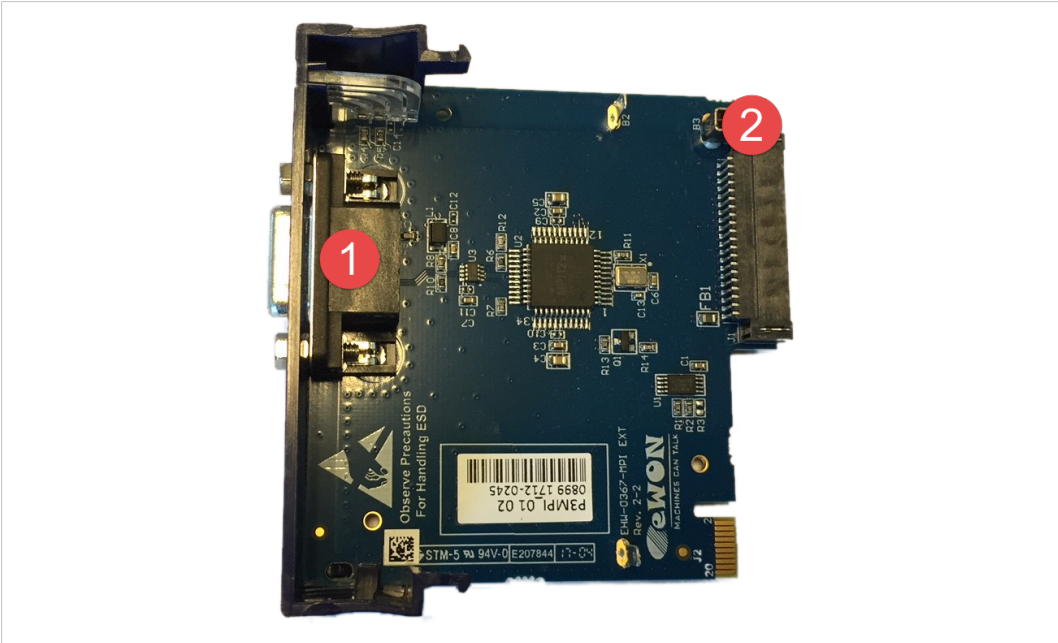


Fig. 1 Mechanical Layout and Interfaces

1	Female SUBD9 MPI port.
2	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 in table below)
SN	Serial Number in the form: **MMMM-YYWW-SSSS-PP** • MMMM : MTID (product related) • YYWW : Year and week • SSSS : Sequential manufacturing order • PP : Product type
MIN FW	The minimum firmware version required to take advantage of the extension card.
Marks	CE, UL... certification number and logos if applicable

Fig. 2 FLC 3701 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 card can be inserted.	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	Any slots	●●●●
		C	Any slots. Available for Flexy 205 only.	○○○○
XXXX_00	The extension card type. 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

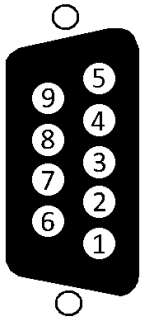
Fig. 3 Front Panel Leds

Item	Mark	Function
1	MPI	GREEN flashing if Rx / Tx activity is detected on port.
2	MTK	GREEN steady if gateway is configured.

4.4 Ewon Flexy Extension Card Environmental Conditions

Characteristics	Value
Operating Temperature	-25 to +60°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

4.5 MPI Port Specification

Characteristic	Value		
Physical mode	MPI (1500V galvanic isolation through the power supply isolation from ground).		
Baud rates	From 9.6 kBauds to 12.0 MBauds.		
Polarization	100 kΩ		
Termination	None		
SUBD9 female connector pinout	**Pin #**	**MP**	
	1	–	
	2	–	
	3	B+	
	4	–	
	5	GND	
	6	–	
	7	–	
	8	A-	
	9	–	

5 Plugging the Extension Card into the Base Unit

5.1 Base Unit Slot Compatibility

The FLC 3701 must be inserted in one of the “Type C” slots of the base unit.

The reference code of the extension cards includes a letter defining their compatibility:

- FL**C** xxxx: designate cards that fit into “Type C” slots.

In addition to the card reference, each type of extension card bears a visual compatibility symbol on its front panel:

Design	Slot Type	Flexy 205 Location	Flexy 10x & 20x
oooo	Type C	Any slot	Not compatible

5.1.1 Ewon Flexy 205

The FLC 3701 which is of “Type C” is designed to be inserted in the Flexy 205. It can be inserted in both slots.

Fig. 4 Position of the “Type C” Slots on a Flexy 205.

5.1.2 Ewon Flexy 10x & 20x

The FLC 3701 is not compatible with the Flexy 10x & 20x. This is the case for all extension cards of “Type C”.

5.2 Extension Card Insertion

5.2.1 How to Insert into the Flexy Base Unit

Wait 30 seconds after turning off the equipment before inserting (or removing) an extension card to avoid possible damage to the base unit and the extension cards.

Remove the slot filler of the location the new card will be inserted. To do so, press on both ends of the cover, note that the hooks are off-centered.

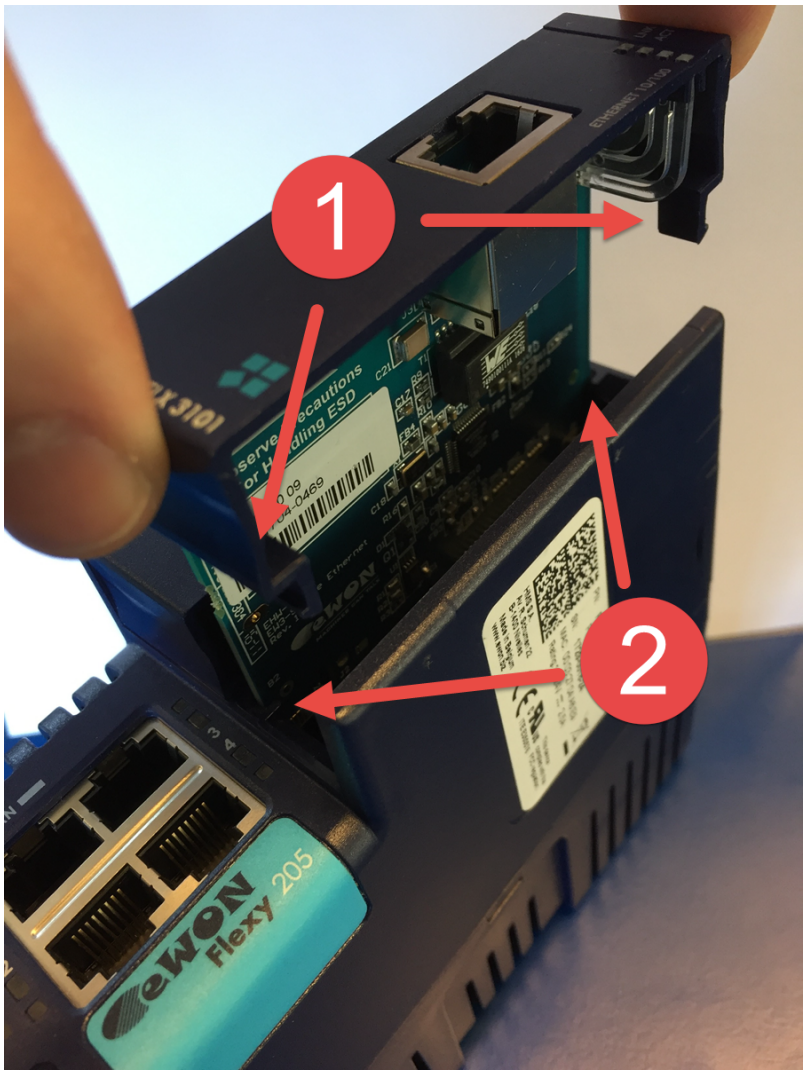


Fig. 5 Remove / Insert an Extension Card or Slot Filler.

1	Hooks to be pressed are off-centered. Press while pulling upwards.
2	Guides to slide down/up the FLC 3701.

Insert the extension card carefully and slide it down until the hook clicks. Make sure the card is completely inserted. **DO NOT insist** if a resistance is felt when trying to insert the card.

Boot the unit for the inserted extension cards to be detected. The web interface of the Flexy base unit has a diagnostic page showing the extension cards in their order of detection (from left to right).

5.2.2 Insertion of Multiple FLC 3701

Detection Order

The boot sequence of the base unit includes an automated detection of the inserted extension cards. This detection is done sequentially, slot per slot starting from left to right (when holding the base unit with its logo on the right side).

Software Compatibility

The base unit allows the insertion of multiple extension cards, sometimes of the same type. Some configurations including multiple extension cards, even if mechanically acceptable, are not supported by the embedded software. Cards in excess are ignored during the automated detection process which means that the base unit and its running extension cards will operate normally.

The Flexy firmware currently supports up to **1** FLC 3701.

The ignored card(s) will appear in the **Diagnostic** > **Status** > **System Info** > **System** but they will not be functional.

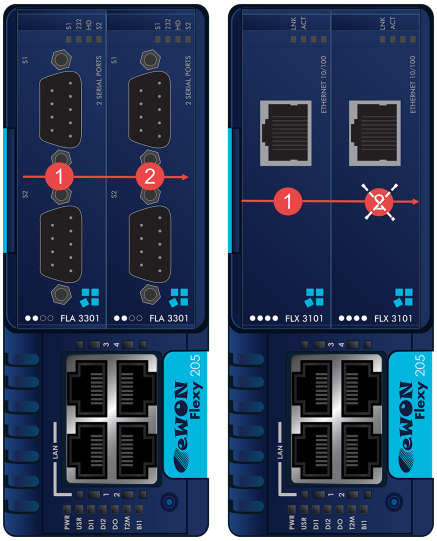


Fig. 6 Order of the Extension Cards

The picture above shows an example of a configuration that would be OK mechanically and power wise but would not be supported by the firmware.

During the boot process, the first 2 serial port extension cards are detected and both can be used.

In case of 2 single Ethernet cards, these 2 cards are also detected but the second Ethernet card is not supported by the firmware and cannot be used. The presence of this “ignored” card in the base unit does not alter the operation of the base unit itself nor does it alter its “accepted” extension cards.

5.2.3 Power Requirements

The “Power Requirements” concept doesn’t apply to the Flexy 205 and its inserted extension cards.

6 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, the following LED status should be observed:

- 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).

7 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.

7.1 Connecting to the Embedded Web Server

Configure the network parameters to set the computer being used to reach the web interface on the same IP range than 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 ***Setup > Users*** and double click on the *adm* entry to edit and save its password.

7.2 Detected Cards Displayed in the System Page

Once connected to the embedded web pages of the Ewon device, the homepage displays the system status including detected extension cards.

To access in details the system status summary, click on ***Diagnostic > Status > System Info > System***.

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