Knowledge Base Information

KB Name	KB-0056-0-EN-(Flexy Compared with CD)		
Type	General		
Since revision	NA		
KB Number	KB-0056-0	Build	59
Mod date	17-DEC-13		

eWON Flexy compared with eWON CD

1 Purpose

The present document reviews the differences between the eWON Flexy and the eWON CD ranges. The differences presented assume a firmware version 7_0S1 or higher.

2 Interface

The firmware structure of the eWON Flexy is the same as for the CD range, hence:

- The web interface and procedures you are familiar with are unchanged
- You do not need to learn a new software
- All system and communication parameters remain available/editable in the text files comcfg.txt and config.txt

Though all basic principles remain valid, this document gives you an overview of the differences and their impact.

3 Comparative Overview

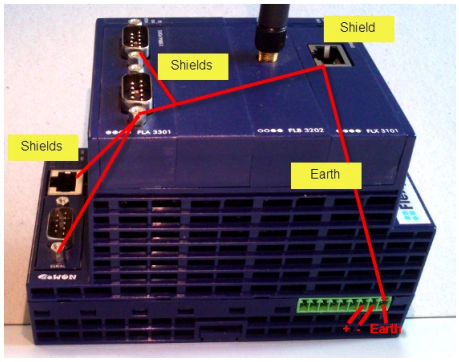
Most features are described more in details further in the document. You can click on the feature hyperlink to jump to the corresponding §.

Feature	Flexy	CD
Housing	Moldable PC/ABS	Stainless Steel
Hardware Isolation	1.5 kV between functional earth (FE) and I/Os including serial port. All metal shields connected to FE.	1.5 kV on Ethernet port 3.5 kV on the DI/DO No isolation on the serial port (except 4005 CD).
Modularity	Base Units can accept up to 4 Extension Cards.	Modems only
Detection of extension cards	Automated + fault detection	Modems only
Serial ports	Up to 5 Serial ports supported 1 on Base Units Flexy 102/202: RS232/RS422/RS485 configured by software. 2 x 2 on Extension Cards, Top port RS232/RS422/RS485 configurable by dip switches Bottom port is RS232 only (not configurable)	1 Serial Port only RS232/RS422/RS485 configured by dip switches (3 on eWON 4002/4102)
Automatically detected WAN ports	Up to 2 WAN ports supported None on Base Units 2 x 1 on Extension Cards	NR
IO configuration	2 DI & 1 DO on all Base Units Possibility to add up to 4 I/O Extension Cards having each 8 DI, 4 AI and 2 DO	1 DI & 1 DO on all CD models (8 DI, 2 DO, 4 AI & 2 PT100 on eWON 4002/4102)
Performances	Internal Memory x4 SD Card Yes (*) Tags per I/O server x3 Exec speed x5 Flash write x7	Memory 32 MB (max) 500 tags per I/O server
Localization	EN, FR & DE in the same firmware	EN, FR or DE each in a specific firmware
Upgrade & recovery	Firmware upgrade + Firmware recovery & low level upgrade (Kernel)	Firmware upgrade only (no recovery mode - RMA when unit is crashed)
Energy Demand vs Available	Power balance of the Extension Cards used in a Base Unit needs to be verified.	NR

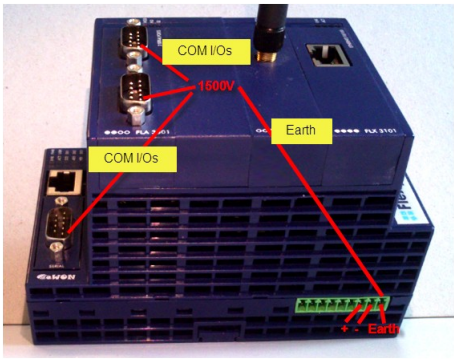
(*) Not supported at document release date.

4 Hardware Isolation

Taking the PC/ABS housing into account, the isolation design and voltage is as shown in the pictures below:



All shields connected to Functional Earth (FE)



1.5 kV isolation between FE and COM I/Os

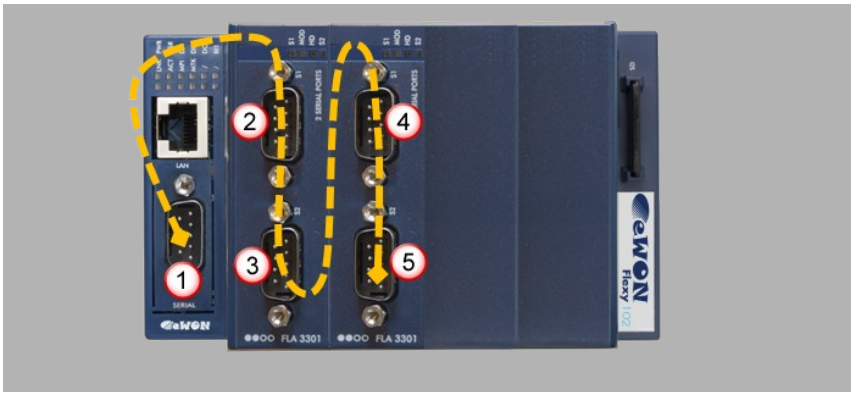
5 Serial Ports

5.1 Serial Port Detection

The eWON Flexy Extension Cards require no software installation. They are automatically detected by the Base Unit when it boots.

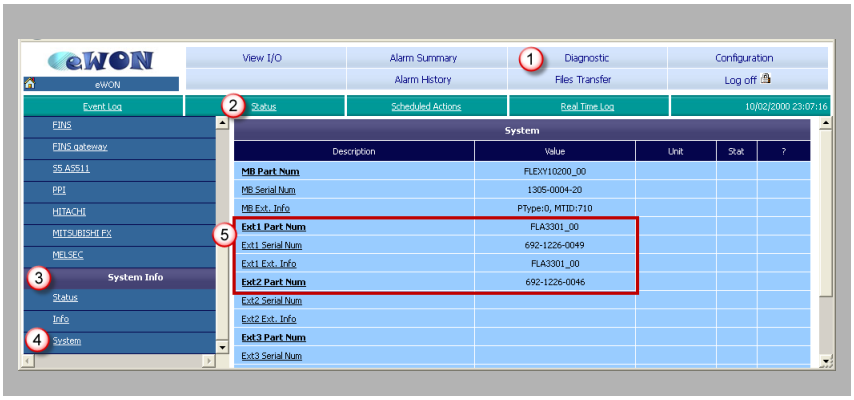
The eWON Flexy firmware supports up to 2 extension Cards of type FLA 3301.

The automatic COM-Port detection is sequential, starting from the Base Unit and then slot per slot from the left to right and from the top to bottom.



The detected cards (5) appear in the eWON System hardware configuration page like shown here (slots 1 & 2).

Path: ***Diagnostic*** (1) > ***Status*** (2) > ***System Info*** (3) > ***System*** (4).



5.2 Serial Port Configuration

Path:
Configuration > ***System Setup*** *(1)* > ***Communication*** (2) > ***Interfaces*** *(3)* > ***Serial ports*** *(4)*

If available, the Base Unit serial port must (*) be configured here.

COM1 = Base Unit port
If available
=> Software config only
If not available all next ports shift 1 place in the order below.

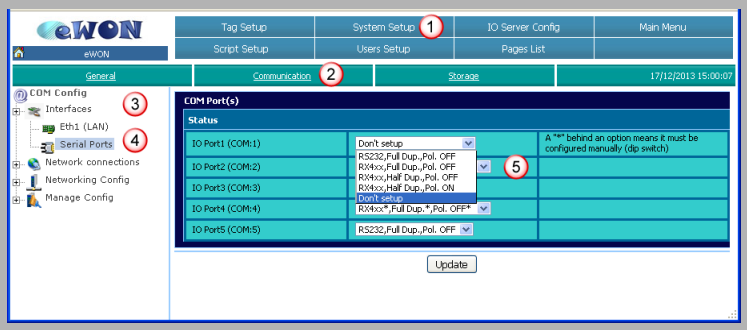
COM2 = 1st port on Extension Card in slot 1
=> via Dip switches on card

COM3 = 2nd port on Extension Card in slot 1
=> fixed RS232.

COM4 = 1st port on Extension Card in slot 2
=> via Dip switches on card

COM5 = 2nd port on Extension Card in slot 2
=> fixed RS232.

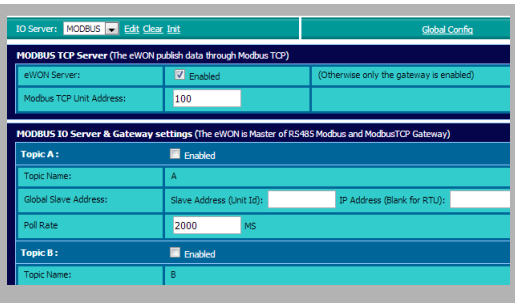
(*) It is recommended to configure all serial ports at this level, even if it is not absolutely required. It will make the configuration hardware independent.



The Web interface is updated automatically depending on the hardware configuration. In the different examples below, we show the impact of some typical hardware configurations on the Modbus server page (path : ***Configuration*** > ***IO Server Config*** > ***MODBUS***)

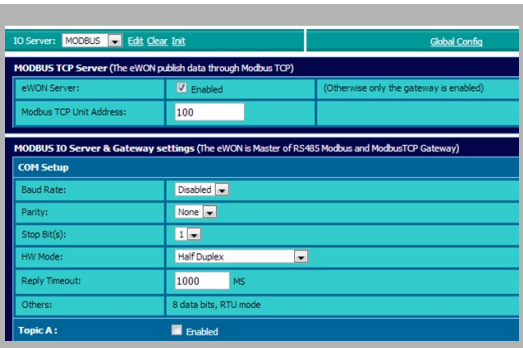
Example 1: eWON Flexy without any serial port ex. Flexy 101/201.

Here, the COM Setup part does not appear at all on the interface.



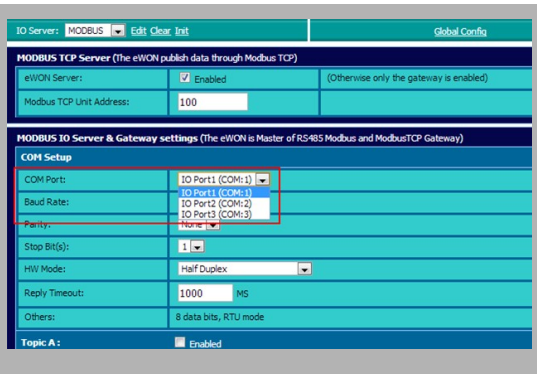
Example 2: eWON Flexy with 1 single serial port ex. Flexy 102/202

Here, the COM Setup interface is present but shows no COM Port selection drop down.



Example 3: eWON Flexy with multiple serial ports ex. Flexy 102/202 + Extension Card FLA 3301

Here, the COM Setup interface is present and shows the COM Port selection drop down.



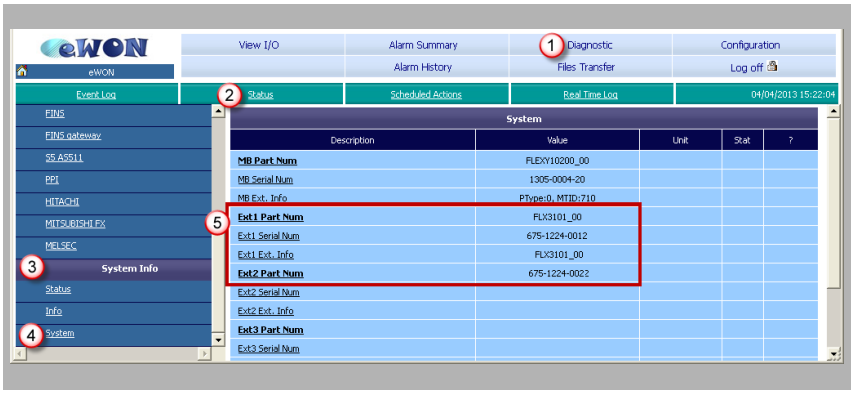
6 WAN Ports

The eWON Flexy Extension Cards require no software installation. They are automatically detected by the Base Unit when it boots.

6.1 WAN Port Detection

The detected cards (5) appear in the eWON System hardware configuration page like shown here (slots 1 & 2).

Path: ***Diagnostic*** (1) > ***Status*** (2) > ***System Info*** (3) > ***System*** (4).

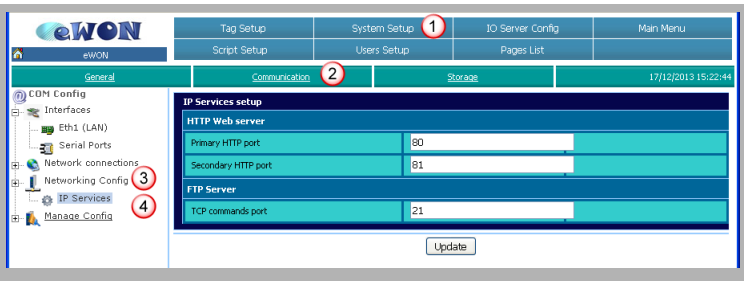


6.2 Wan Port Configuration

The Web interface is updated automatically depending on the hardware configuration.
Path: ***Configuration*** > ***System Setup*** *(1)* > ***Communication*** (2) > **Networking Config**

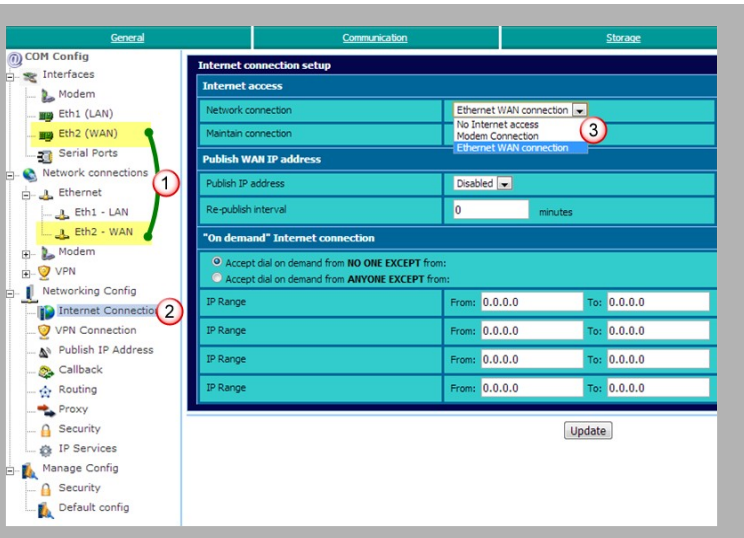
Example 1: eWON Flexy without any WAN interface

No Eth2 - (WAN) displayed
Limited options under ***Networking Config*** *(3)*



Example 2: eWON Flexy with 2 WAN interfaces : Ethernet + GSM modem

Eth2 - (WAN) displayed (1)
Drop down (3) in the ***Internet Connection*** (2) page.



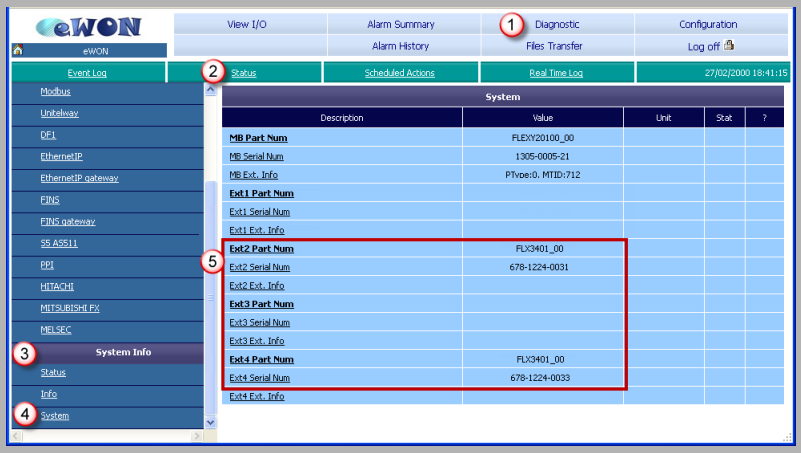
7 I/O Configuration

The eWON Flexy Extension Cards require no software installation. They are automatically detected by the Base Unit when it boots.

7.1 I/O Card Detection

The detected cards (5) appear in the eWON System hardware configuration page like shown here (slots 2 & 4).

Path: ***Diagnostic*** *(1)* > ***Status*** *(2)* > ***System Info*** *(3)* > ***System*** *(4)*.

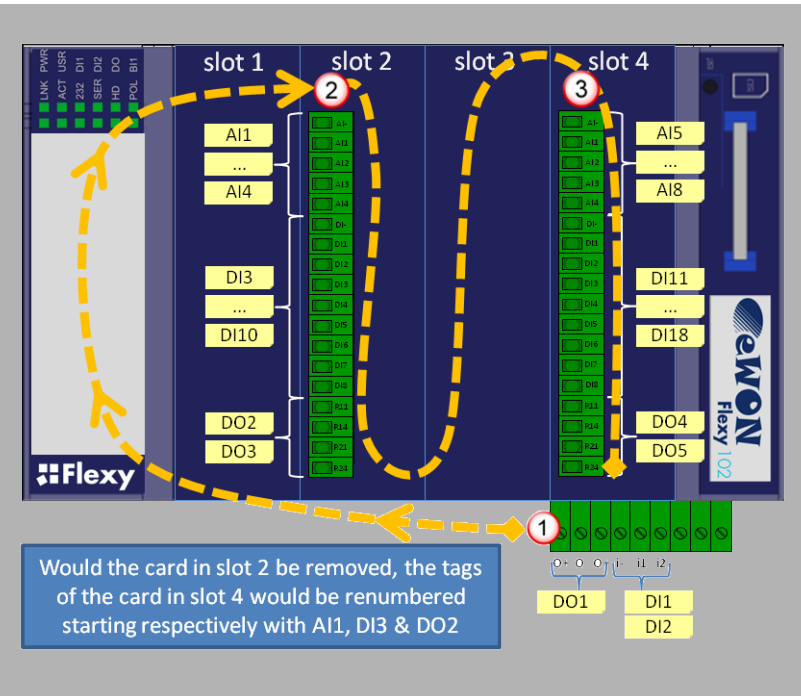


7.2 Tag Addressing

The internal tag addressing of the Flexy range always starts with the I/Os of the Base Unit.

All Base Units have 1 DO and 2 DI, those are the first ones that have to be considered when creating tags in the eWON.

The example here helps you to understand the syntax of the I/O Server tag addresses in the case of 2 I/O Extension Cards.



Note: *Following the left-to-right order of slots, the first card to be detected is the Extension Card plugged in the most left slot, then the next on its right and so on. Removing an I/O card other than the utmost right one will result in an internal reallocation of tag addresses. To avoid a mismatch between physical I/Os and their software configuration, the software*

tag addresses can be "frozen" by adding the slot number in the tag definition. This prevents accidental I/O mismatch.

As example based upon the configuration shown in the image above, we will look at the tag address corresponding to the terminals marked DI1 and DO1 on the connector of the first I/O card (slot 1).

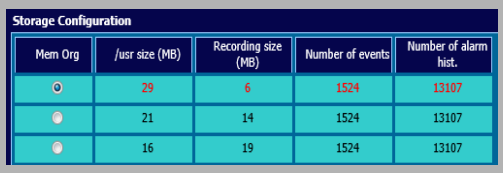
Tag address syntax	**Both I/O cards inserted** Physically corresponds to	**First I/O card removed** Physically corresponds to
DI3 (while DI1 and DI2 are on the Base Unit)	Terminal DI1 of the first detected I/O card which is in slot 1	Terminal DI1 of the first detected I/O Card which is now in slot 4 (was initially tag address DI11, so the physical value of channel DI11 will be injected to DI3)
DO2 (while DO1 is on the Base Unit)	Terminal DO1 of the first detected I/O card which is in slot 1	Terminal DO1 of the first detected I/O Card which is now in slot 4 (initially tag address DO4, so the physical output of channel DO2 will be sent to the line of former DO4)

Same example with slot number append (freezing address):

Tag address syntax	**Both I/O cards inserted** Physically corresponds to	**First I/O card removed** Physically corresponds to
DI3,E1	Terminal DI1 of I/O card in slot 1	Terminal DI1 of I/O card in slot 1 not found, tag in error
DO2,E1	Terminal DO1 of I/O card in slot 1	Terminal D01 of I/O card in slot 1 not found, tag in error

8 Performance Improvements

Physical flash x4 = 128 MB
User memory x2 = 35 MB
Config size x2 = 1028k
Historical logging x 6 = 15MB
Script size x2 = 512k
Tags/server x3 = 1500
Tags/Total x1.6 = 2500
Execution speed x5
Flash write x7
HSUPA modem speed:
- download x8
- upload x2

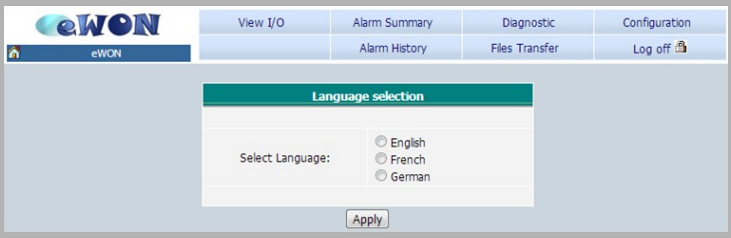


9 Localized Interface

The language selection popup appears as long as the Flexy was not configured. Changing the language afterward can be done by doing a reset level 2.

If a reset level 2 cannot be done, it is possible to reset the language parameter to -1 (minus one) in the comcfg.txt file. After reboot, the language popup will reappear allowing you to select a language.

Whatever the method used to change the language, the eWON needs a reboot to take the change into account.



10 Upgrade and Recovery

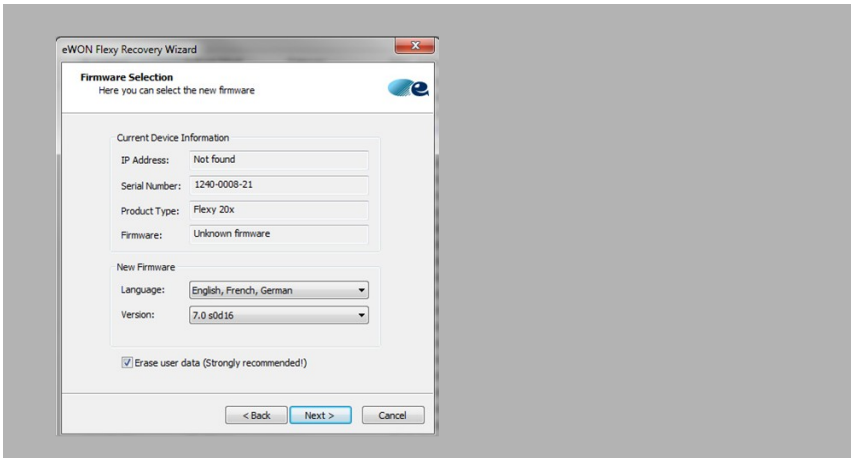
10.1 Upgrade

Upgrade (EDF file)
Same as on CD range.

Can be done using eBuddy or using an FTP download of the EDF file to the eWON.

No language specific firmware to download: the language extension is «ma».

File size is about 3MB (like before)



10.2 Recovery

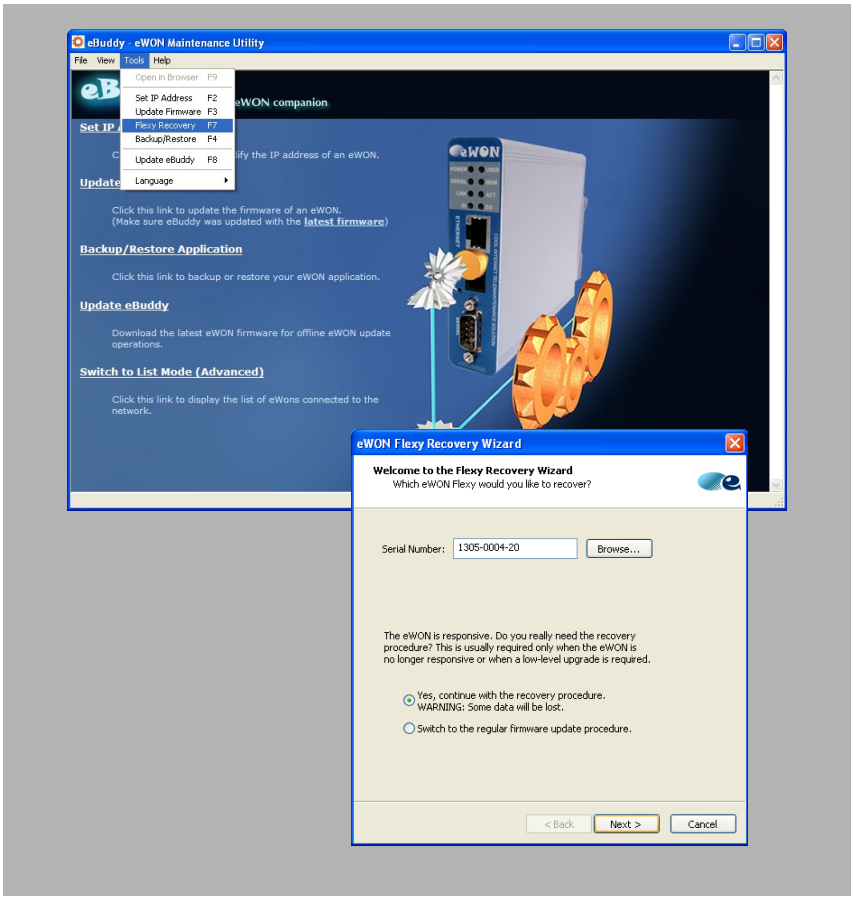
Recovery (EBU file)
Allows to recover an eWON if it has crashed. Like for example when an upgrade or a downgrade is no longer possible (FTP error & event log).

=> On CD devices, this situation requires an RMA.

Use eBuddy + an Ethernet switch between your PC and the eWON (a direct link won't work).

There is a special sequence to perform on the ***Reset*** button BI1 to enter the recovery mode. Just follow the instructions as explained in the recovery wizard of eBuddy.

All data on the eWON will be erased.



11 Functional Limitations

Same as for the CD-Range:

- A given I/O Server can be allocated to only 1 serial port
- SMS reception & emission is not possible as long as a GPRS connection is open
- SD-card not yet supported

12 Energy Demand vs Available

The total power demand of the Extension Cards may not exceed the power capabilities of the Base Unit. That is why the notion of “Energy Points” has been introduced.
See IG-014-0-EN § 4.5 Extension Card Power Requirements.

Each Base Unit type has a certain amount of **Available Energy Points**. The available energy points depend on the Base Unit type and on the temperature range in which the equipment will actually be used.

Each Extension Card is requiring a certain amount of **Energy Demand Points**.
The energy demand points per Extension Card type are specified in their respective installation guide.