MACHINES CAN TALK

Installation Guide

IG 016 / Rev. 1.3

eWON Flexy
2 Serial Ports Ext. Card
FLA 3301

This Installation Guide explains how to install the eWON Flexy 2 Serial Ports Extension Card FLA 3301.

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Table of Contents

1. Product Summary

The present Installation Guide describes the hardware of the 2 Serial Ports Extension Card FLA 3301 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 §3.7 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 2 Serial Ports Extension Card FLA 3301. This Extension Card is basically belonging to the same compliance frame than the Base Units.

2.2. ESD Damage Prevention

- Caution -

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 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 R&TTE 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

2.4. FCC Compliance

The Base Units described in the present Installation Guide comply 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.

2.4.1. Certifications

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

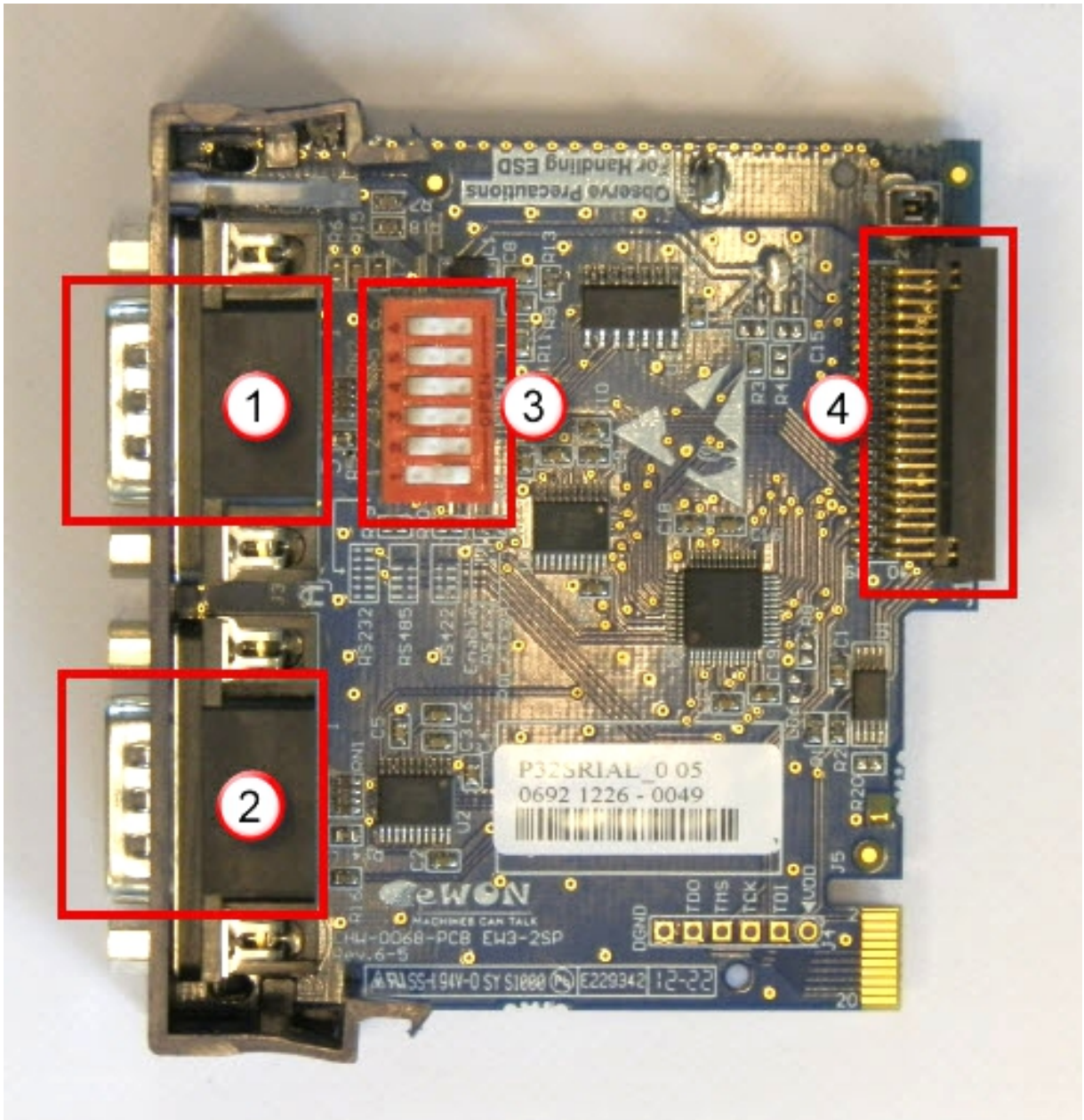
- UL Certificate of Compliance (COC) # 20160502-E350576
- CB certificate # DK-53957-UL

These certificates can be downloaded as PDF files on the eWON Support web site:

http://ewon.biz/support/docs/flexy

3. Hardware Description

3.1. Mechanical Layout and Interfaces



1	Configurable RS232/RS422/RS485 serial port (DB9 male) – marked S1
2	Non configurable RS232 serial port (DB9 male) – marked S2
3	Dip switch block to configure port S1 – factory setting ALL OFF (RS232)
4	Back-plane 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.

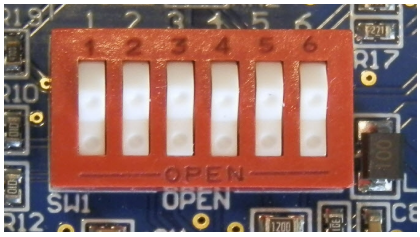
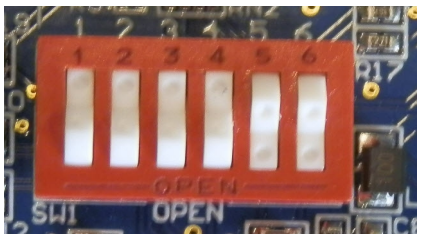
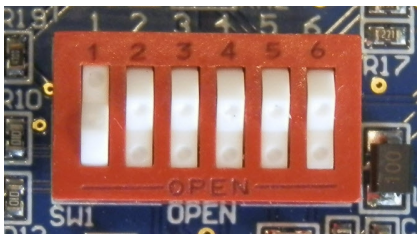
The different parts of the label are described below:

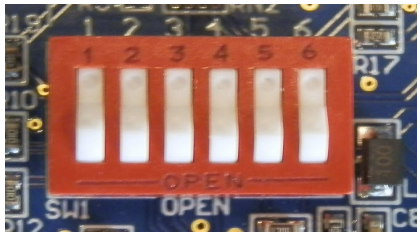
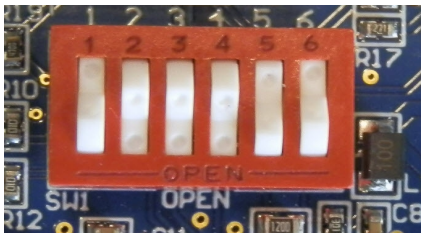
PN	**Part Number:** identifies the type of the card. Description see 3.2.2 Part Number Syntax for Extension Cards
SN	**Serial Number** Structure of the Serial Number 1111-2233-0001-44 1111 = MTID (product related) 2233 = Year Week 0001 = sequential mfg order 44 = product type
Marks	CE, UL,... certificate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

3.2.2. Part Number Syntax for Extension Cards

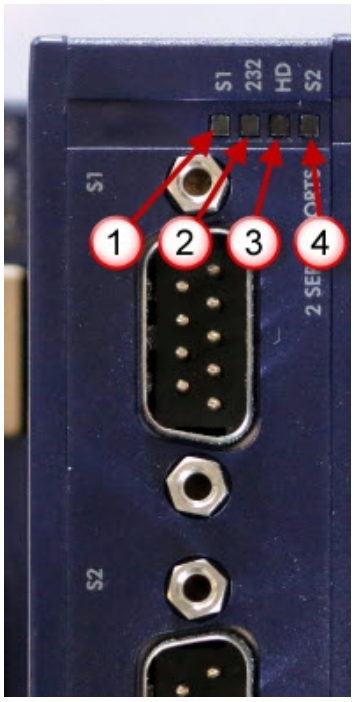
FLA 3301_00				
Position(s)	Description	Acceptable values		
FL	FL is the prefix for the extensions of the eWON Flexy family	Only FL (constant)		
A	1 alphabetic sign (CAP) Defines the slots of the base module in which the extension can be inserted. See also 3.7.1 Base Unit Slot Compatibility	A	2 first slots only	●●○○
		B	2 last slots only	○○●●
		X	In any slot	●●●●
3301_00	2 Serial Ports Extension Card. The suffix _00 is used for software options.			

3.3. Dip Switch Configuration of Port S1

RS232 (ex-factory) All six switches OPEN (pressed in on OPEN side, raised out on numbers side)	 RS232
RS485 Switches 1 to 4 CLOSED (pressed in on numbers side, raised out on OPEN side) Remaining 2 switches see terminations (below)	 RS485 without terminations
RS422 Switch 1 CLOSED (pressed in on numbers side) Switches 2 to 4 OPEN (pressed in on OPEN side, raised out on numbers side) Remaining 2 switches see terminations (below)	 RS422 without terminations

Terminations (RS485/422) Activated: Switches 5 & 6 BOTH CLOSED (pressed in on numbers side) Termination values, see § 3.6 Serial Port Specifications	 RS485 with terminations  RS422 with terminations

3.4. Front Panel LEDs

Item	Mark	Function	Picture
1	S1	GREEN flashing Rx/Tx activity on port S1	
2	232	GREEN steady if S1 is configured in RS232 OFF in all other cases	
3	HD	GREEN steady if S1 is configured in Half Duplex (RS485) OFF in all other cases	
4	S2	GREEN Flashing Rx/Tx activity on port S2	

3.5. eWON Flexy Extension Cards Environmental Conditions

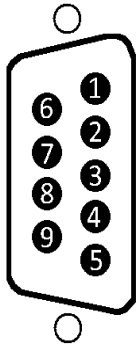
Characteristic	Value
Operating temperature	-25 to +70 °C
Storage temperature	-40 to +70 °C
Relative humidity	10 to 95% non-condensing
Operating altitude	Up to maximum 2000m
Storage altitude	Up to maximum 3000m

3.6. Serial Port Specifications

3.6.1. Configurable Port S1

Port S1 is configurable by dip switch in 3 different physical modes RS232, RS422 and RS485, see § 3.3 Dip Switch Configuration of Port S1.

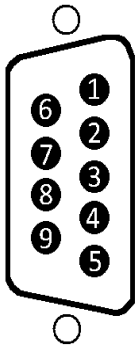
Characteristic	Value			
Physical modes	Port S1= RS232/422/485			
Polarization	300 Ω on 3.3V (if polarization & termination are activated)			
Termination	120 Ω (if polarization & termination are activated)			
SUBD9 connector pinout	in #	RS232	RS485	RS422
	1	-	-	-
	2	RXD	-	Rx+
	3	TXD	A+	Tx+
	4	-	-	-
	5	GND	GND	GND
	6	-	-	-
	7	RTS	-	Rx-
	8	CTS	B-	Tx-
	9	-	-	-



3.6.2. RS232 Port S2

Port S2 is RS232 only.

Characteristic	Value	
Physical modes	RS232	
SUBD9 connector pinout	**Pin #**	**RS232**
	1	-
	2	RXD
	3	TXD
	4	-
	5	GND
	6	-
	7	RTS
	8	CTS
	9	-



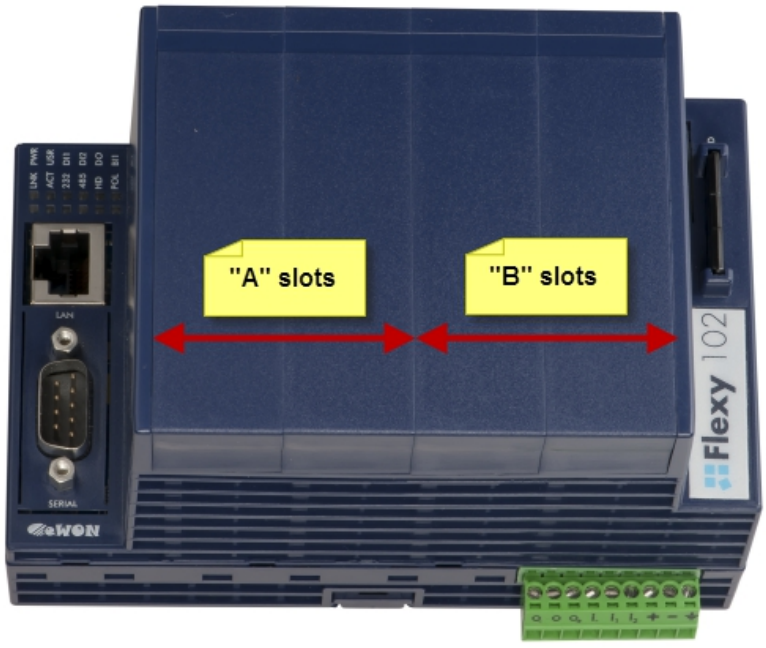
3.7. Plugging the Extension Card into the Base Unit

3.7.1. Base Unit Slot Compatibility

The ***2 Serial Ports Extension Card*** (FLA 3301) must be inserted inside one of the **2 "A" 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

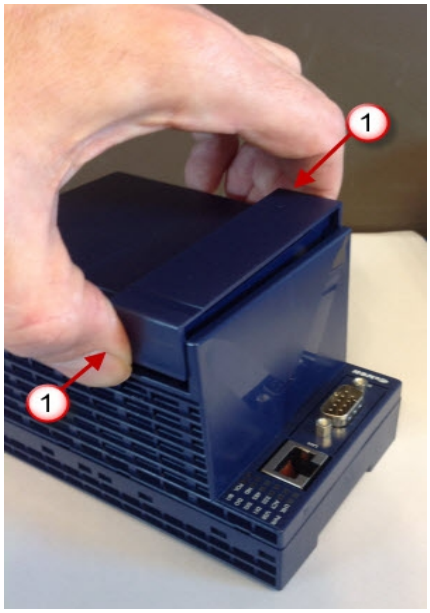
In addition to the card reference, each type of extension card bears a visual compatibility symbol on its front panel. The visual symbols are shown in the table below:

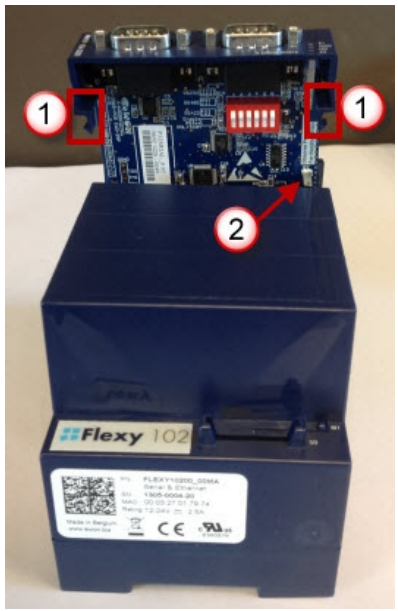
●●○○	2 first slots only (A)
●●●●	In any slot (X)
○○●●	2 last slots only (B)

3.7.2. 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 (1) 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).

3.7.3. Multiple Serial Extension Cards

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

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.

eWON firmware port naming convention:

Depending on the Base Unit and applying the left to right detection order of the extension cards, following port naming (COM1, COM2, ...) will be applied inside the eWON firmware.

A) Base Units: Ethernet Switch and MPI & Ethernet (Flexy 101, Flexy 201, Flexy 103, Flexy 203)

Front Panel Marking	First 2 Serial Ports Extension card	Second 2 Serial Ports Extension card
S1	COM 1	COM 3
S2	COM 2	COM 4

B) Base Units: Serial & Ethernet (Flexy 102, Flexy 202)

Front Panel Marking	Base Unit serial port	First 2 Serial Ports Extension card	Second 2 Serial Ports Extension card
Serial	COM1	NA	NA
S1	NA	COM 2	COM 4
S2	NA	COM 3	COM 5

3.7.4. 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.

	Serial Extension Card FLA 3301
Energy Demand Points	1

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 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 **232** ON (Green if S1 is configured in RS232, OFF in all other cases)

- 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

- Warning -

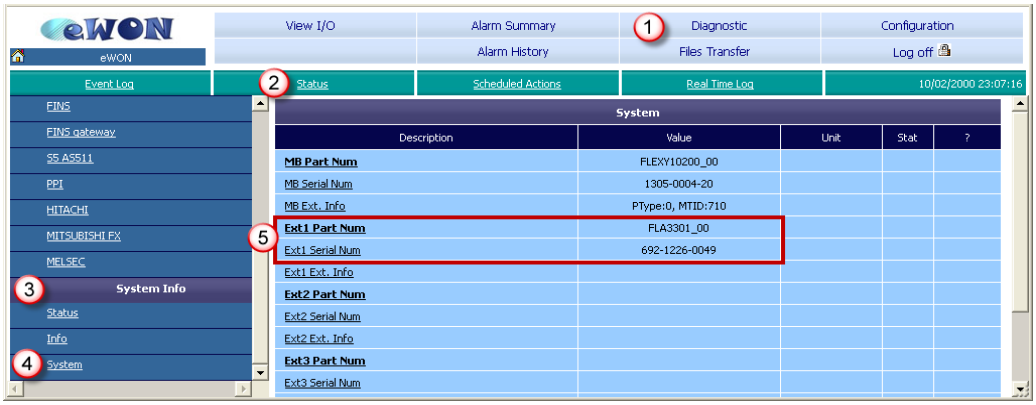
*For security reasons, changing the default password **adm** is absolutely required.*

*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 detected card appears in the eWON ***System*** hardware configuration page like shown below.

The path to the ***System*** hardware configuration page showing the cards detected by the Base Unit is: ***Diagnostic (1) > Status (2) > System Info (3) > System (4).*** The screen capture below gives an example of an FLA 3301 extension card that has been detected in slot 1 (5).



Revision

Revision History

Revision Level	Date	Description
1.0	05/07/2013	Preliminary version
1.1	21/11/2013	Official product release version
1.2	17/11/2015	New template
1.3	27/07/2016	Update of Legal References

Document build number: 19