ingenico

COMPACT MULTIPLE READER

Self/2000 LE
Self/4000 LE
Self/5000 LE
Add-on Boxes

www.ingenico.com

13-17 rue Pagès, 92150 Suresnes – France

Banks and Acquirers International Holding SAS / 814 767 216 RCS Nanterre

Preliminary

These guidelines apply to all integrator and/or manufacturer partners to which INGENICO supplies the Self/x000 LE range products.

Self/x000 LE range concerns the following products: Self/2000 LE, Self/4000 LE and Self/5000 LE.

Self Modular (Self/7000 & Self/8000) and Self/3000 have their own integration guide.

Self/x000 is a cashless payment solution comprising both hardware and software components, designed by the INGENICO Group (hereinafter "INGENICO") to integrate payment functionality into self-service devices or terminals, such as vending machines, fuel pumps, ticket machines, kiosks, etc. (hereinafter the "Terminal(s)").

Products in the Self/x000 range are only intended to be installed in Terminals by manufacturers or integrators responsible for the complete assembly of such devices (hereinafter the "Partner(s)").

INGENICO Partners, who are qualified professionals specializing in their area of activity, have specific know-how and a high level of technical knowledge as regards integrating cashless payment solutions into their Terminals.

These guidelines are intended as a reminder of good practice and set out the rules applicable to all our Partners about integrating Self/x000 into their Terminals.

1. Integrating Self/x000 into each Terminal

Partners bear sole responsibility for integrating each Self/x000 product into their Terminal and must comply with:

(i) local standards and regulations.
(ii) the integration rules set out in this guide.
(iii) the state of technology and current industry practices in effect in terms of design, manufacturing, integration, commissioning, and maintenance of Terminals.
(iv) good engineering practices, the highest quality criteria in effect in the profession and the corresponding standards.

To support its Partners in the integration process, INGENICO has introduced the following services (Partners are invited to contact their local INGENICO sales representative to find out more about the terms applicable to each service):

(i) Partners carrying out their first integration of the Self/x000 must attend a technical training course run by technical experts to help them to comply with the requirements outlined above and strict integration rules.

(ii) In addition, INGENICO can also offer a technical assistance service for Self/x000 integration and commissioning to any Partner who requests it.

Considering the information above, INGENICO cannot be held responsible for any Self/x000 integration that is not compliant with the criteria above, into a Terminal by one of its Partners.

2. Compliance of Self/x000 and the Terminal with the legislation/regulations in effect

2.1 Self/x000 LE compliance

Products in the Self/x000 range are designed by INGENICO to comply with the applicable international and/ or local standards in effect, particularly in environmental (CE, FCC, CSA, etc.) and security (EMV, PCI, etc.) terms. Documents confirming compliance with these standards can be made available to INGENICO Partners on request. They can also be viewed directly on the websites of the official organizations that issue them (Bureau Veritas, PCI, etc.). If necessary, test reports can also be viewed, at the Partner's request only, at INGENICO's offices at the address shown.

2.2 Terminal compliance

As stated above, the Partner is responsible for the complete assembly of the Terminal, which will include other third-party components, materials, and solutions (hereinafter the "Components") as well as the cashless payment solution.

The Terminal assembled by the Partner must undergo subsequent checks in accordance with the local, European and/or international legislation/regulations applicable (hereinafter the "Certification(s)").

For example, regarding electromagnetic compatibility:

- **For the European Union:** commissioning and market release of the Terminal are subject to reception of CE declaration of compliance in accordance with RE Directive2014/53/EU of April 16th 2014.

- **In the United States and Canada:** control and evaluation rules on the compliance of the Terminal have been implemented by the FCC (Federal Communications Commission) and IC (Industry Canada). It should be noted that the fact that the Self products and each of the Components in the Terminal are compliant with the applicable standards may not be sufficient to obtain the Certifications. For example,
INGENICO is aware of the importance of the quality of design of the electrical circuit (e.g. input filtering) and cabling (including earthing of components) for compliance with rules on electrical radiation.
INGENICO cannot be held responsible for any non-compliance of the Terminal of any kind. INGENICO's recommendations as outlined in these guidelines are intended to help with obtaining Certifications but may not be sufficient in themselves.
The scope of this document is to assist third party integrators when dealing with Ingenico Unattended products such as Self/2000. It offers all information needed for a successful integration of this products into unattended kiosk machines.

For any sales information, please refer to your Ingenico contact into the region.

Updates table

Version	Date	Nature of modifications	Author	Visa
0.1	20/03/2023	First Draft	H. BLANC	
1	07/2024	Add consumption values	H. BLANC	

Contents

1. General

1.1 Definition of acronyms

CVM	Cardholder Verification Method
EMC	Electro Magnetic Compatibility
EVA	European Vending Association
GND	Ground
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
LCD	Liquid Crystal Display
LLT	Local Loading Tool
MDB	Multi Drop Bus
RAM	Random Access Memory
RS232	Recommended Standard 232 A standard for serial binary communications
SAM	Secure Access Module – storage for the electronic cash register in a stored value scheme such as Moneo, Proton or VISA Cash.
SMA	SubMiniature version A
USB	Universal Serial Bus
CL	Contactless
EXE	EXEcutive protocol
VMC	Vending Machine Controller
LE	Low Energy

1.2 Payment solution presentation

The Self/x000 Series is the new range of Ingenico unattended devices to offer payment into any kiosk through any segments (petrol, transport, vending, parking, etc.).

Self/0xxx are add-on module to upgrade functionalities.

Self/2000 LE product is compact reader offering contactless card processing, keeping a “High tech” design.
Self/5000 LE product is compact reader offering contact, magnetic and contactless card processing.

Self/4000 LE product has the same card processing than Self/5000 LE with a conventional keyboard.

These compact devices are designed to fit everywhere, thanks to an easy installation mounted by the front and/or the rear, respectful of EVA EPS (Standard door module).

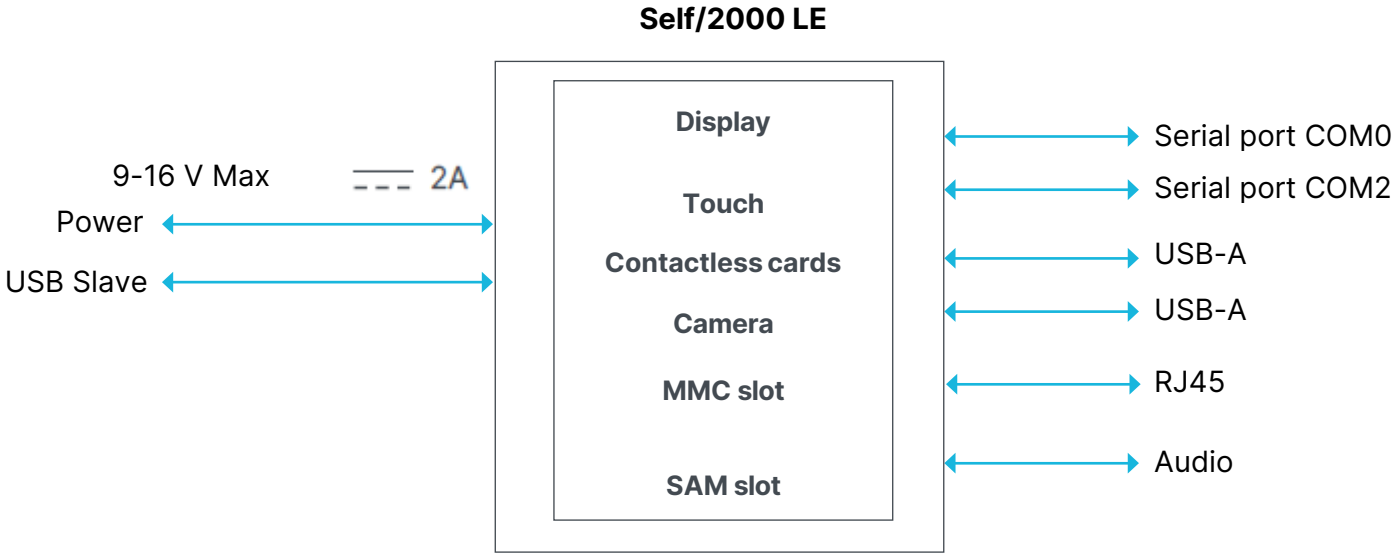
Self/2000 LE can be installed indoor or outdoor.

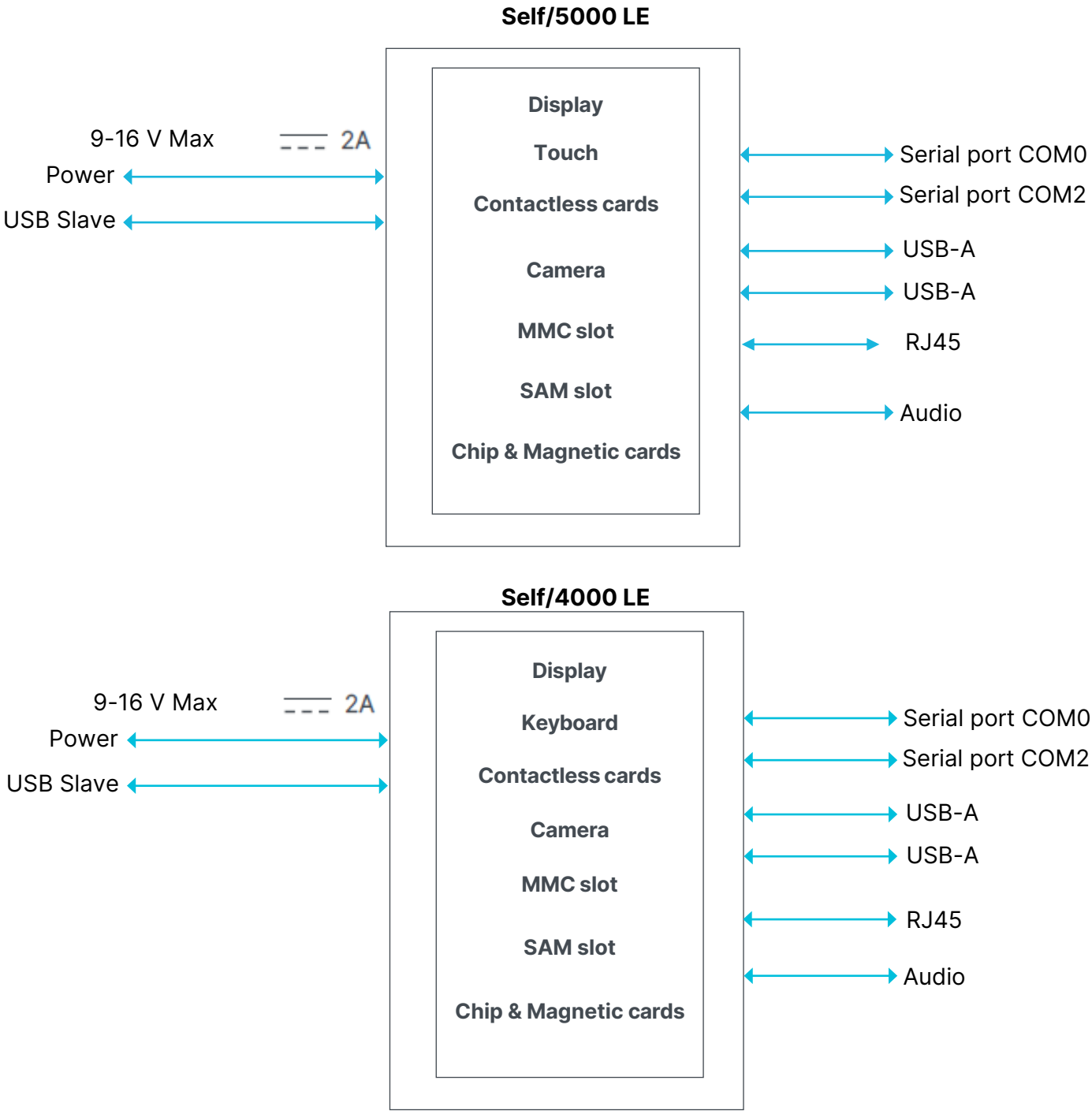
Self/4000 LE and Self/5000 LE are designed for indoor usage. They can be used outdoor under some conditions described in dedicated chapter.

Self/x000 LE is also written Self/x000 LE (CL) to highlight the contactless capability.

The Self/x000 LE series is the next generation of Ingenico leveraging of experience from previous product ranges, i9500 series, CAD30 series or iSELF series, to renew your experience of unattended payment.

1.2.1 Connectivity and communications diagrams



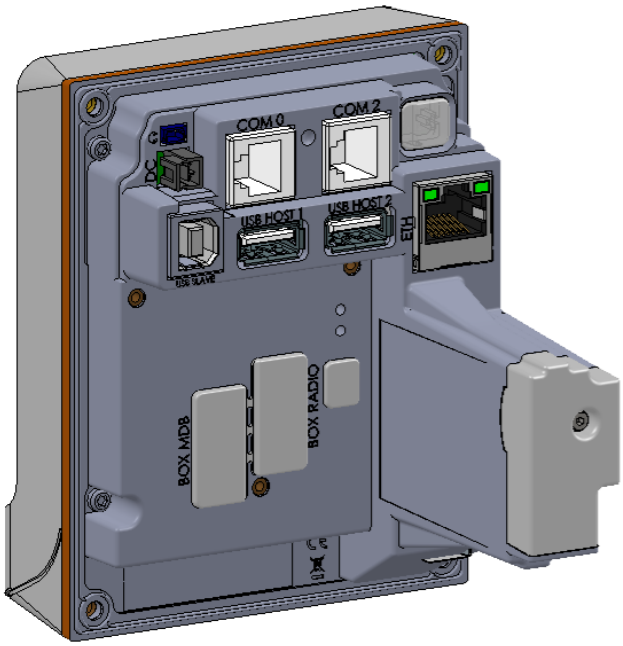


1.2.2 Services

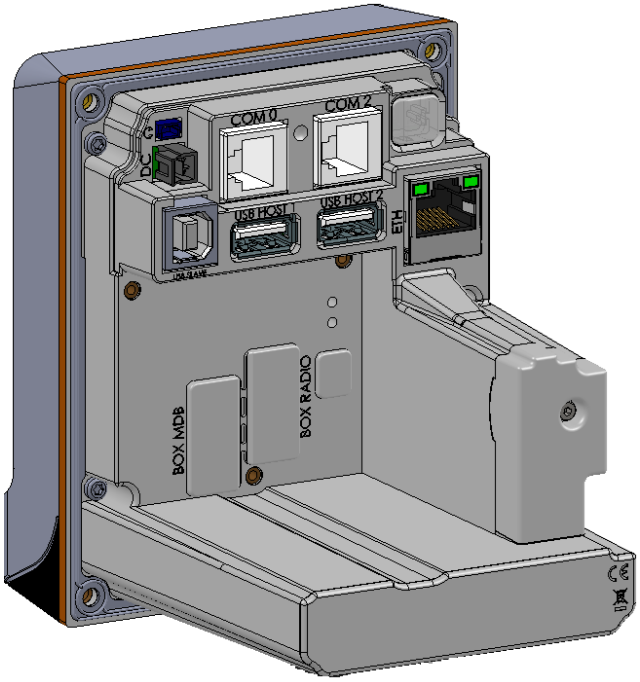
Training	Please find all the information through the link below https://showme.ingenico.com/
Support	Hot line support Technical assistance
After-Sales Service	Fixed cost repair of iSelf Series products
Downloading server center	User license Installation User training Hot line support Technical assistance
Softwares / Licences	User license for local loading tool, LLT User license for applications software License for software signature tool, SAT License for "EMV Level 2 package " License for TCP/IP

1.3 Description of modules

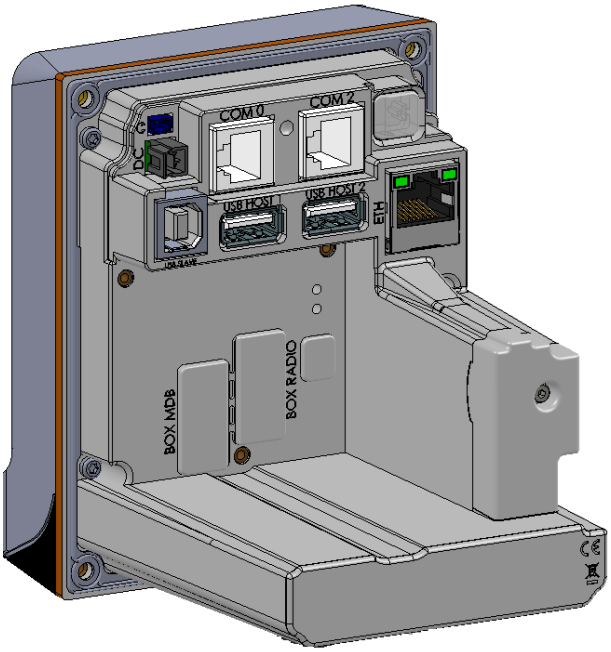
1.3.1 Self/2000 LE product views



1.3.2 Self/5000 LE product views



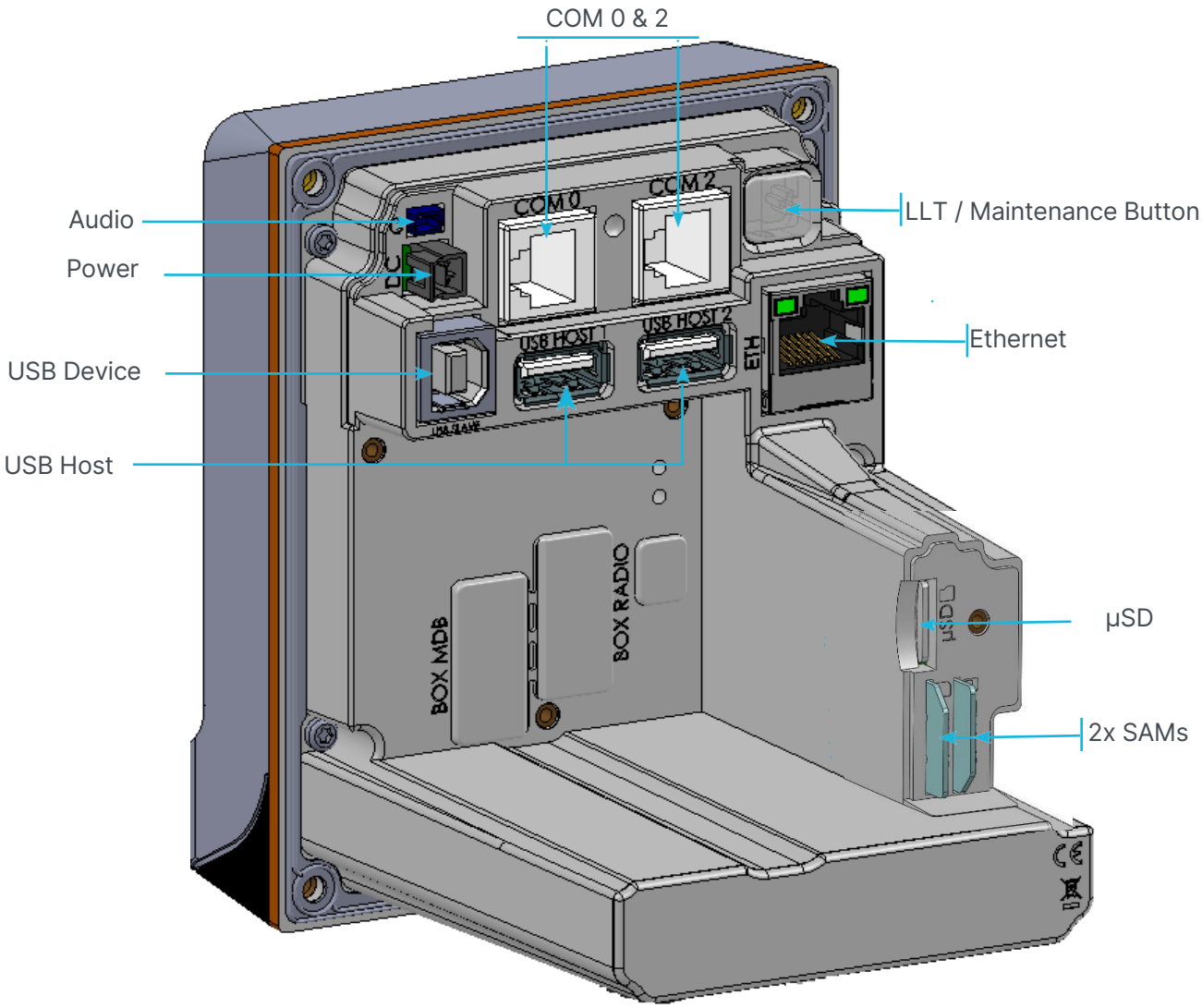
1.4 Self/4000 LE product views



1.4.1 Technical Hardware characteristics

Mass	Self/2000 LE: 340g Self/5000 LE: 429g Self/4000 LE: 378g
Dimensions	107 x 85 x 110 mm (height x width x depth)
Power Supply	9V to 16V ; 2A
Platform	Tetra
Memory	512 MB SDRAM and 512 MB Flash *(512 MB SDRAM and 256 MB Flash for Pre serial units)*
Link	2x USB host (USB-A) 1x USB device (USB-B) 2x RS232 (RJ11) 1x Ethernet (RJ45) 2x Add-on BOX connection
Functionality Self/2000 LE	Contactless cards reader 3,26" graphic display (240*320) + Touch Camera - (OPTION w/o Camera) Buzzer Audio connector output 1x Maintenance Button 1x µSD 2x SAM Wake-up mechanism on RS232 connectors
Functionality Self/5000 LE	Contactless cards reader 3,26" graphic display (240*320) + Touch Camera Buzzer Audio connector output 1x Maintenance Button 1x µSD 2x SAM Wake-up mechanism on RS232 connectors Hybrid card reader (magnetic & chip)
Functionality Self/4000 LE	Contactless cards reader 2,27" backlighted, landscape mode (640*240) 16 backlighted keys. Camera Buzzer Audio connector output 1x Maintenance Button 1x µSD 2x SAM Wake-up mechanism on RS232 connectors Hybrid card reader (magnetic & chip)

1.4.2 Output connectors description



1.4.3 USB device

The device uses type B USB cable.

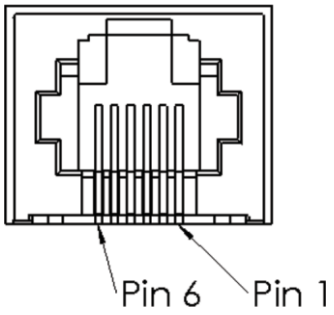
Cable length should not exceed 5m.

1.4.4 COM0 and COM2 links

The device can be connected to serial port COM0 or COM2.

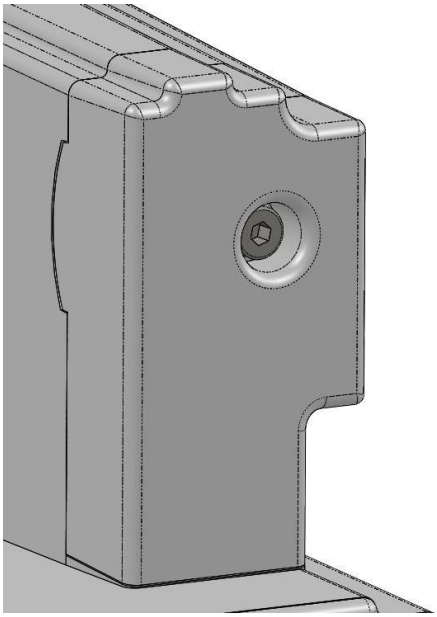
The connector type is RJ11.

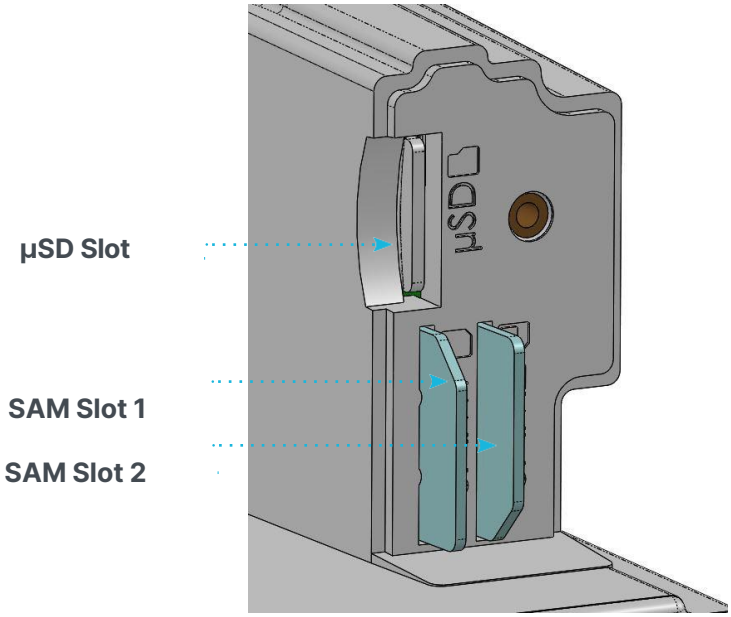
Pin N°	Function
1	GND
2	Wake-up
3	RXD
4	TXD
5	CTS
6	RTS



1.4.5 SAM & µSD Installation

1. Disconnect the device from cable power supply.
2. Remove (unscrew) protective plastic part.
3. Insert the SAM cards in SAM slot 1 and /or slot 2. Take care about the corner angle location.
4. SD card in µSD slot, following picture symbol.
5. Replace protective plastic part, screws using torque: 0,8N.m





1.4.6 Buzzer

The buzzer is controlled by application. The frequency depends on software.

1.4.7 Contactless LEDs & Contactless Logo

Contactless LEDs & Contactless Logo are displayed on the screen. Except on Self/4000 LE, CLess Logo is located between display and keypad.

Device has a full touch on the screen.

1.4.8 Touch (Self/2000 LE & Self/5000 LE)

Based on context, the application can display buttons or numeric keyboard.

1.4.9 Keyboard (Self/4000 LE)

Device has a mechanical keyboard.
10 x digit key, 4 x function key (Correction/valid, Cancel, reserved) and 2 contextual keys (*, #, or, up/ down).

1.4.10 Maintenance Button and LED

The device has a maintenance button at the back.

- To enter LLT mode, press the button at power up or at restart, and keep it pressed until the red LED lights on.
- To enter Maintenance mode, press the button at power up or at restart, and keep it pressed until the green LED lights on.
- To restart the product, press the maintenance button until 3 red flashes then release; a blue flash appears.

Restart the process until 3 red flashes. The device should display "Reset in Progress" and restart.

NB: When Device is in exploitation mode and fully started, the LED is fix green if all is working well. Other LED configurations in exploitation mode highlight an issue.

1.4.11 Audio output

The Audio output is coming from a Mono Class D PWM Amplifier which can be connected to a 4 or 8 ohms speaker with a signal level going up to 3.3V.

1.5 Hybrid card reader

On front face the device has a backlighted card entrance for Chip & magnetic card. The color of card entrance can be customized by software.

1.6 Professional installation requirement

Ingenico only sells its products, to qualified partners and integrators. They oversee professionally resell, integrate, and install these products inside complete solution for end customers.

These end customers solution can be (not exhaustive list):

- Petrol station.
- Ticketing kiosk (Airline tickets, cinema, transport, etc.).
- Vending machine operator.
- Parking kiosk (On / off street).

Thus, the public cannot purchase Ingenico hardware or software.

Partners, resellers, and Integrators must have qualified electronics engineers to be able to install or integrate our products.

Furthermore, they must follow a specific technical training conducted by Ingenico technical experts.

In addition, installation must follow Ingenico recommendations, as describe in this document, to respect:

- Local regulations for Electrical Safety and Radio emission levels.
- Ferrite beam installation if any.

Our field support & maintenance engineers are available for follow up.

1.7 Wake-up function

1.7.1 Wake-up mechanism

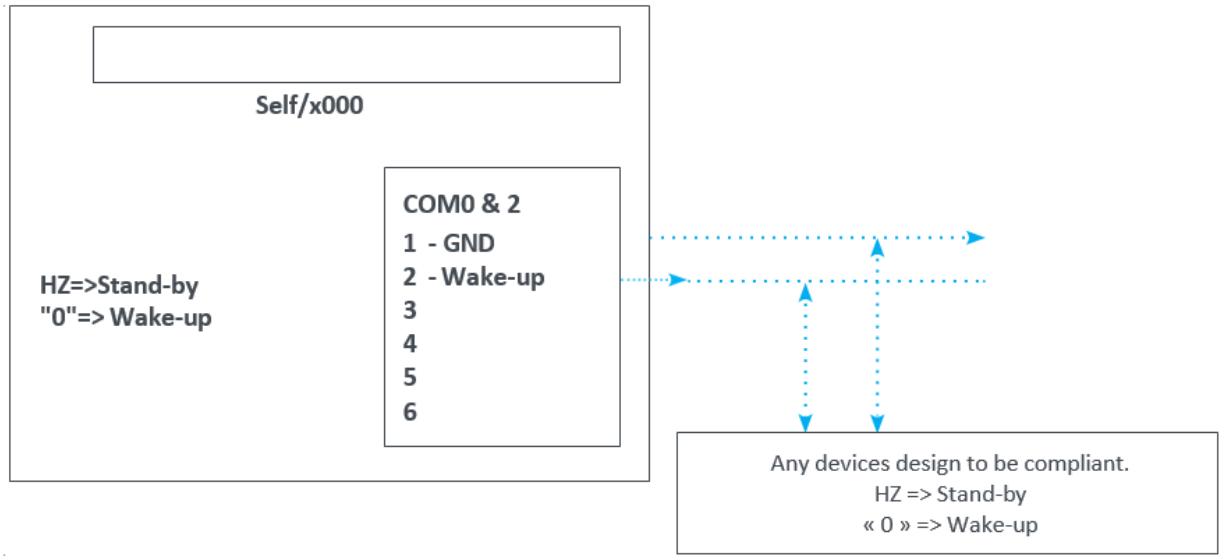
Device is designed to save power thanks to a “stand-by mode”. If the stand-by mode is used, use Wake-up mechanism:

- with Pin 2 of COM0 or COM2 link.

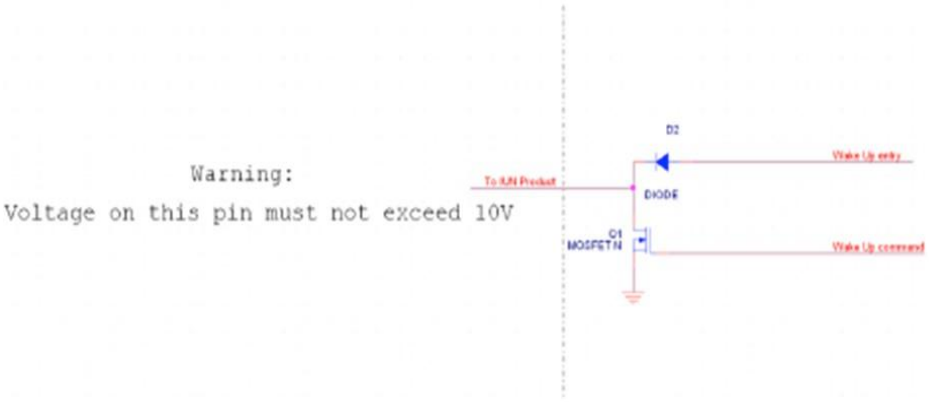
Wake-up state	
Hz (high impedance)	Stand-by authorized
Drive to "0"	Wake-up / Stand by unauthorized

The Wake-up pin is drive to “0” by the one asking the wake-up.

It could be driven by Self/x000 LE or any devices designed to be compliant (Host device…).



1.7.2 Recommended circuit implementation



The wake up pin must be high Impedance. Do not connect directly any voltage on this pin.
The devices are 10 volts tolerant on this pin but it is recommended to be High impedance
The voltage on this pin must not exceed 10 volts in any case.
As the pin is high impedance in stand by mode, any current leakage can wake up the product so please be careful to choose component with ultralow leakage current for wake up circuit.

2. Main accessories

For complete description of Ingenico Accessories, please refer to *Accessories Catalog Unattended Terminals*.

3. Self/x000 LE series software

3.1 Generalities

Self/x000 are secure payment products built around Telium 3, the Ingenico Secure Processor. This processor is designed to manage two separate worlds:

- A Trusted World which controls the sensitive peripherals.
- A Normal World which is used to run the customers payment application.

The communication between these two worlds is under the supervision of the Trusted World.

3.2 LLT Button indicator

To enter a mode. Press the button until the indicator corresponding the function you want appears. Then release it.

Fixed red	LLT Mode
Blinking purple	Maintenance Mode
Fixed Green	Production mode
Blinking purple	Reserved for R&D
Fixed purple	Reserved for R&D

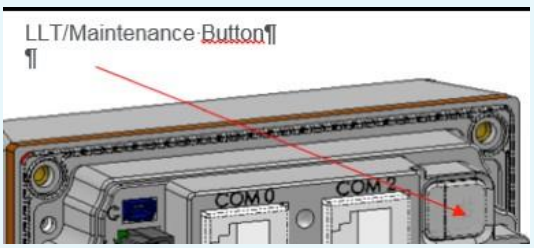
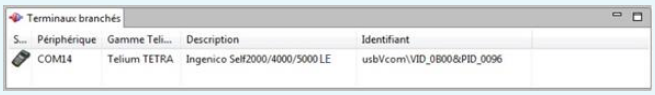
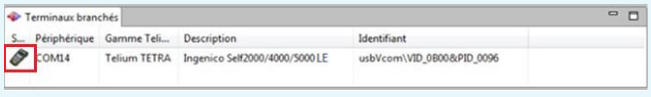
3.3 Software Local Loading

3.3.1 LLT Mode

Software can be loaded in the products using the Local Loading Tool (LLT). The LLT is formed by:

- A PC running with Windows 10, Windows 8.1, Windows 8, Windows 7 or Windows Vista (Windows XP is no more supported for security reason).
- A USB cable,
- The Ingenico Local Loading Software (Version 5.5 must be used at least with Self/x000 LE products).

Local loading procedure on Self/x000 LE

1_ Launch the LLT software on the PC	Local Loading Tool
2_Switch off the product **3_ Connect the PC to the slave USB connector** **4_ Press the LLT Button** **5_ Switch on the product** **6_ When the LED underneath the LLT button becomes fixed red, release the button**	
7_ Wait for the apparition of "COMxx Self/ x000/..." on LLT Screen	
8_ Click on the COMx... to enable connection between the product and the PC.	
9_ Refer to the instruction given in the last version of the "LLT User's Guide" to load the software.	Contact local support for last version of the LLT User's Guide

3.3.2 USB key mode

« SOFTWARE AUTOLOAD with USB key»

While running in exploitation mode, by plugging a USB key which contains a **"TELIUM3"** folder, the files listed in a catalogue file can be loaded in the Self product.

Important: The USB key must be plugged in when the Self product is started and ready. It is possible to create sub folders.

A menu is displayed on device screen to select the dedicated catalog to load.

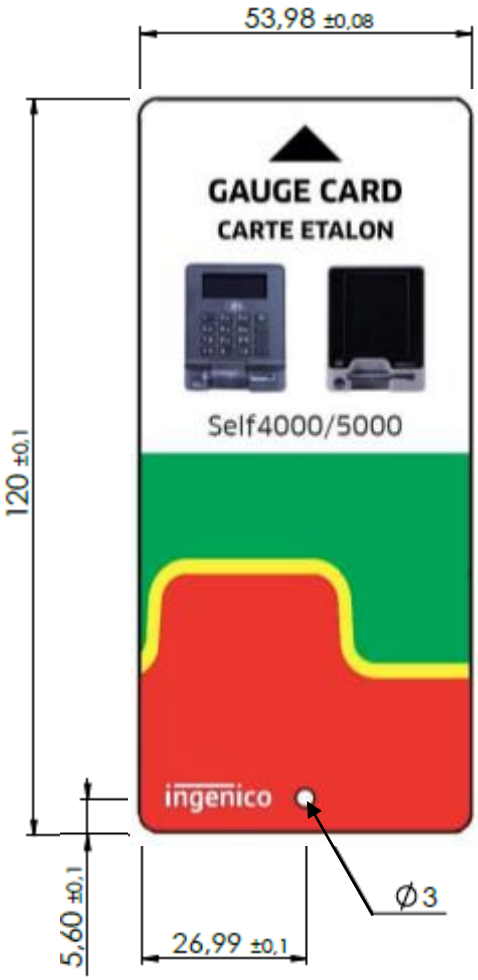
Only **catalogues files** are listed.

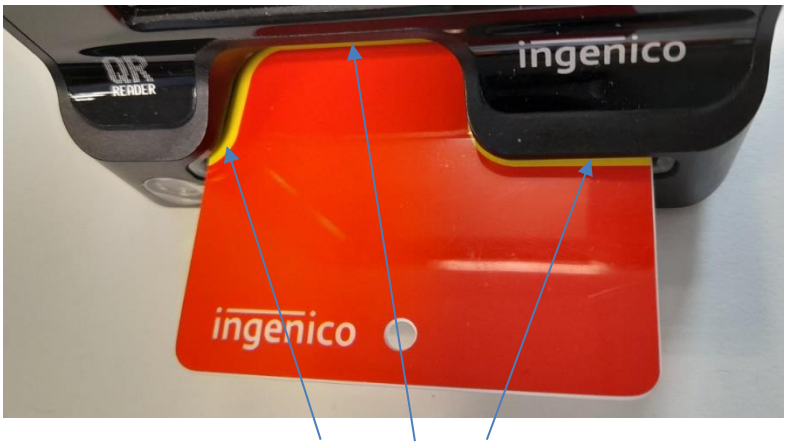
These catalogues created can be tested with LLT.

Self product will restart when all files are loaded.

4. Gauge card

The gauge card is used to control the reader of Self/4000 LE and Self/5000 LE to detect a potential 'skimmer' device





When inserted in the terminal, ensure that yellow line is positioned **flush to the entrance of the reader**

5. Requirements for product installation

Note: It is required to use ESD-protective clothing while handling these devices.

5.1 Security requirement

Your device fulfils current applicable PCI PTS security requirements.
Upon receipt of your terminal, you should check for signs of tampering of the equipment. It is strongly advised that these checks are performed regularly after receipt. You should check, for example: that the keypad is firmly in place; that there is no evidence of unusual wires that have been connected to any ports on your terminal or associated equipment, the chip card reader or any other part of your terminal. Such checks would provide warning of any unauthorized modifications to your terminal, and other suspicious behavior of individuals that have access to your terminal. Your terminal detects any “tampered state”. In this state the terminal will repeatedly flash the message “Irruption!” and further use of the terminal will not be possible. If you observe the “Irruption!” message, you should contact the terminal helpdesk immediately.
You are strongly advised to ensure that privileged access to your terminal is only granted to staff that have been independently verified as being trustworthy.
The terminal must never be put in or left at a location where it could be stolen or replaced by another device. You are strongly advised to perform regular checks on the chip card reader. No commissioning is request for Self/x000 LE range, since PCI PTS5.x.

5.2 Kiosk mechanical requirements

The kiosk panel can be metallic or plastic.
The kiosk panel thickness must be between 2 mm and 5 mm. This is very important for Contactless performance.
The kiosk panel can be coated with painting but grounding of Self/x000 LE modules must be insured. The kiosk panel surface used to mount the product should be planar.

With a metallic kiosk panel thickness more than 5mm or with metal parts near the antenna, the performance might not be correct.

5.2.1 ESD recommendations

Metallic kiosk must be grounded to earth to protect the electronic devices they embed, such as Self/xxxx. Regularly in contact with end customer during card introduction or CLESS payment, a rugged resistance to ESD must be guaranteed.
Self/xxx devices are tested up to ± 8 kV contact discharge and ± 16 kV through the air at low humidity with different payment cards following standard requirements procedures (note that usual standards defined discharge threshold limits at ± 4 kV contact discharge at ± 8 kV air through the air discharge).

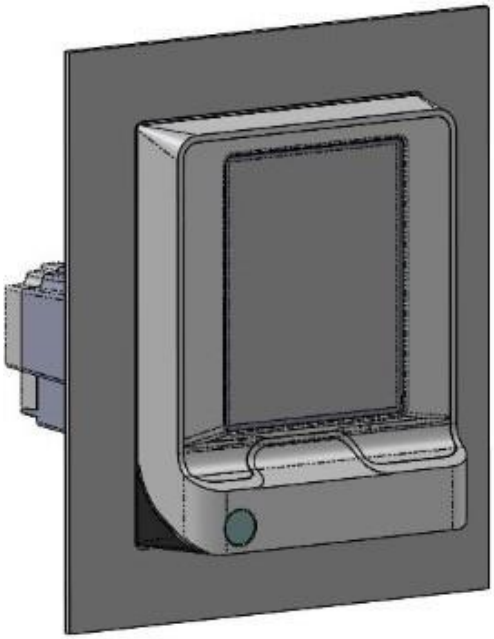
- if an **EVA plate is used** to fix the Self/xxx device on a metallic kiosk, please use one of the dedicated areas to connect the Self/xxx to the ground. Indeed, a Kiosk gasket inserted between metallic part and Self/xxx may cut the connectivity to the ground.

- if no **EVA plate is used**, no need to add additional grounding cable, the screws used to fix the Self/xxxx device on the kiosk guarantee a good connection to the ground.

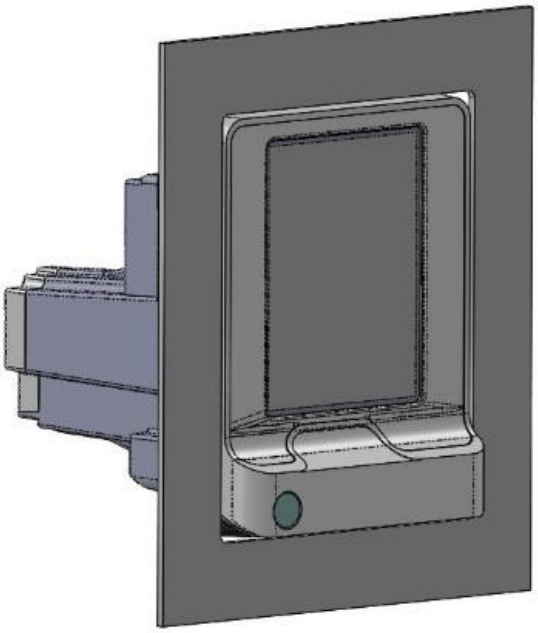
5.2.2 Contactless best practice

Self/xxx devices have been tested fitted vertically on a metallic kiosk (3 mm thickness), with and without EVA plate. EMVCo standard performances are guaranteed for a 'plan integration' but NOT if Self/xxxx is inside the kiosk with metallic part around.
Remind also that the CLESS Logo is displayed on the screen for Self/2000 LE and Self/5000 LE and on top keyboard of Self/4000 LE. CLESS Logo must not be hidden during a transaction.

Recommended integration with metal kiosk



Not recommended integration with metal kiosk.



5.3 Installation requirements:

- Ensure that you have enough free space for installation, operational and maintenance needs.
- Be aware of the safety regulations.
- Product must be mounted vertically(preferred) and at appropriate height.
- Carefully consider the ergonomic aspects and the local acts or recommendations concerning disabled and visually impaired people.
- See environmental specification and especially in case of very cold or humid weather, take steps to ensure that the internal temperature is at least -20 °C.
- Do not hesitate to contact our support team for advice and validation of planned integration.

5.3.1 Requirements for indoor use

- Indoor use is possible without restriction for Self/2000 LE, Self/4000 LE, Self/5000 LE.
- Vertical installation is recommended but installation with angle from vertical is possible, no more than 35° for better ergonomic, due to lack of rain.
- Confidentiality when entering the PIN code must be preserved.

5.3.2 Requirements for outdoor use (precautions)

- Outdoor use is possible by respecting the following precautions:
  - The terminal waterproofing, especially for Self/4000 LE & Self/5000 LE (hybrid card reader).
  - The screen readability under direct sunlight, especially for Self/2000 LE & Self/5000 LE. (Capacitive touch screen).
  - The confidentiality when entering the PIN code.
- Regarding mechanical integration:
  - Vertical integration is recommended for a better protection against rain and sunlight.
  - For Self/4000 LE and Self/5000 LE:
    - Vertical integration (0° angle from vertical) is mandatory to prevent water from accumulating in the reader.
    - Connect the water drainage pipes. Evacuate the water by gravity in the bottom of the kiosk without any direct contact with other devices.
    - a visor should be installed to protect the terminals from the rain / water and from the sun, or products should be installed in a recess.

5.3.3 Protection from prying eyes

- Regarding the protection from prying eyes:
  - The terminal was certified without pin shield
  - So as the pin shield is not mandatory, no pin shield is provided as accessory by Ingenico
  - However, we suggest ensuring the privacy of PIN entry, which is the responsibility of the integrator by the integration in a recess or between 2 lateral protections.
  - In any case: keep a minimum of 2 cm around the terminal (in case of large smartphone and to keep away steel parts)

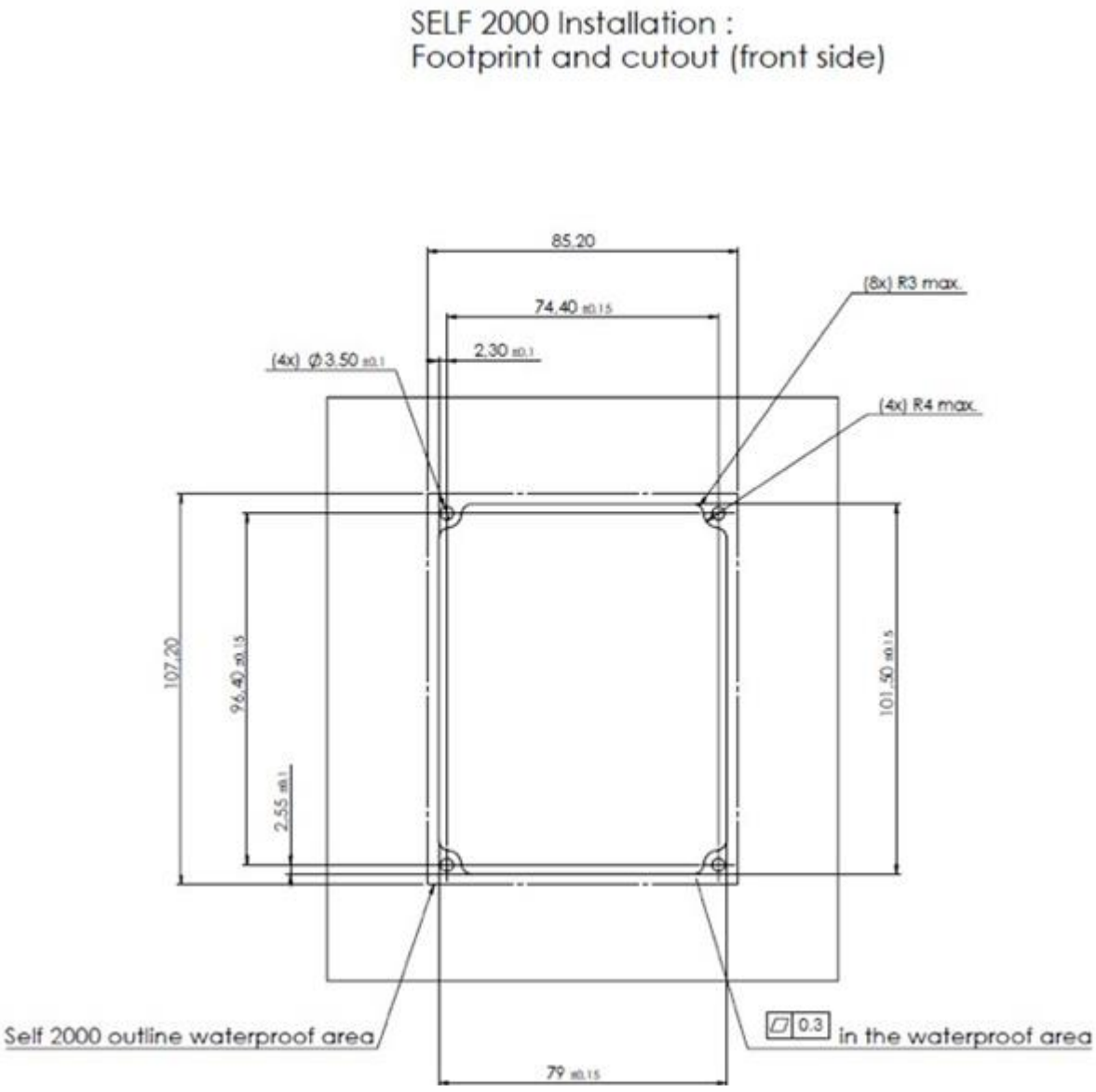
6. Procedure for product installation

The label with PCI Hardware Version Number must be visible once the device is installed.
The centerline of operating controls or input and output components shall be located above 400 mm from the floor.

6.1 Product mounted on kiosk panel

6.1.1 Kiosk Preparation

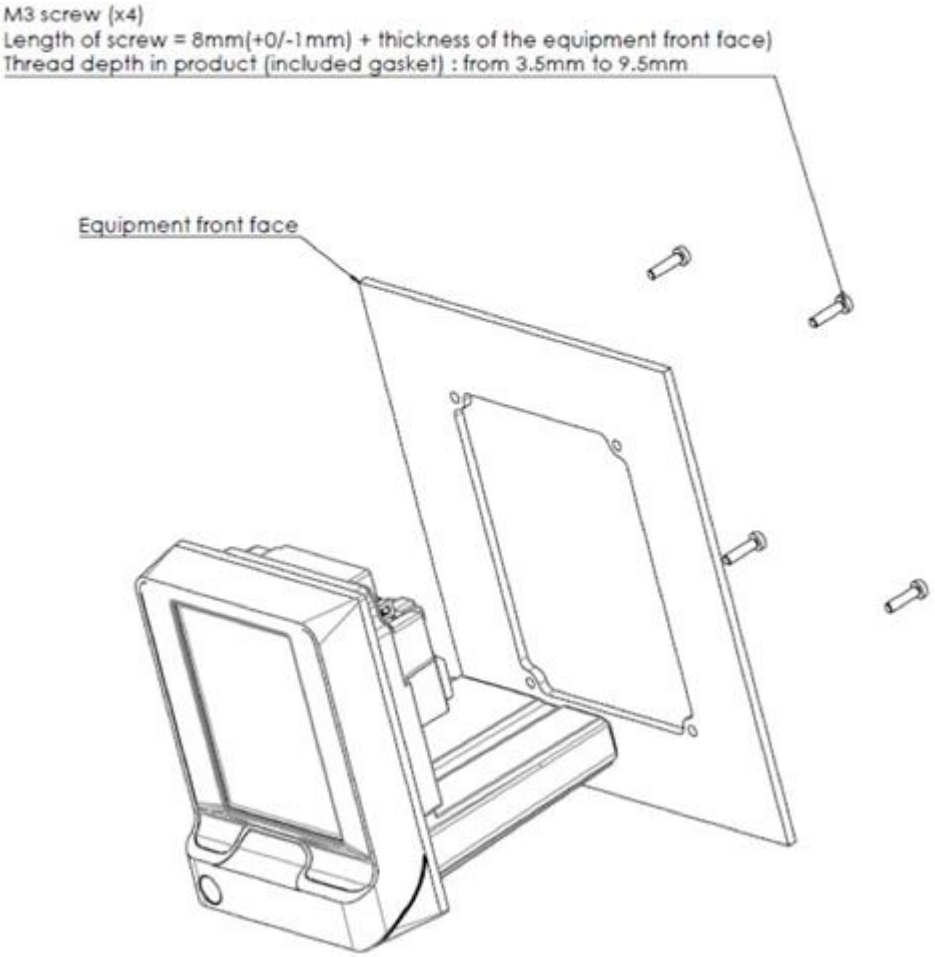
Products can be mounted directly on kiosk panel. It requires a cut out in the kiosk to the dimensions detailed in the diagram below (all dimensions are in millimeters).



6.1.2 Installing the product

Screw the 4 screws M3 with a 1 N.m +- 0,2 torque. It is recommended to use washers.

MOUNTING BY FRONT



CAUTION

It is important that the device footprint surface on the kiosk must be flat and cleared of any holes and burrs to prevent from dust and water penetration in the kiosk. (IP65 standard). Rubber at the rear of the product guarantees waterproofness between kiosk panel and product. 3D step files are also available upon request.

6.2 Product mounted on EVA plate

6.2.1 Installing the product

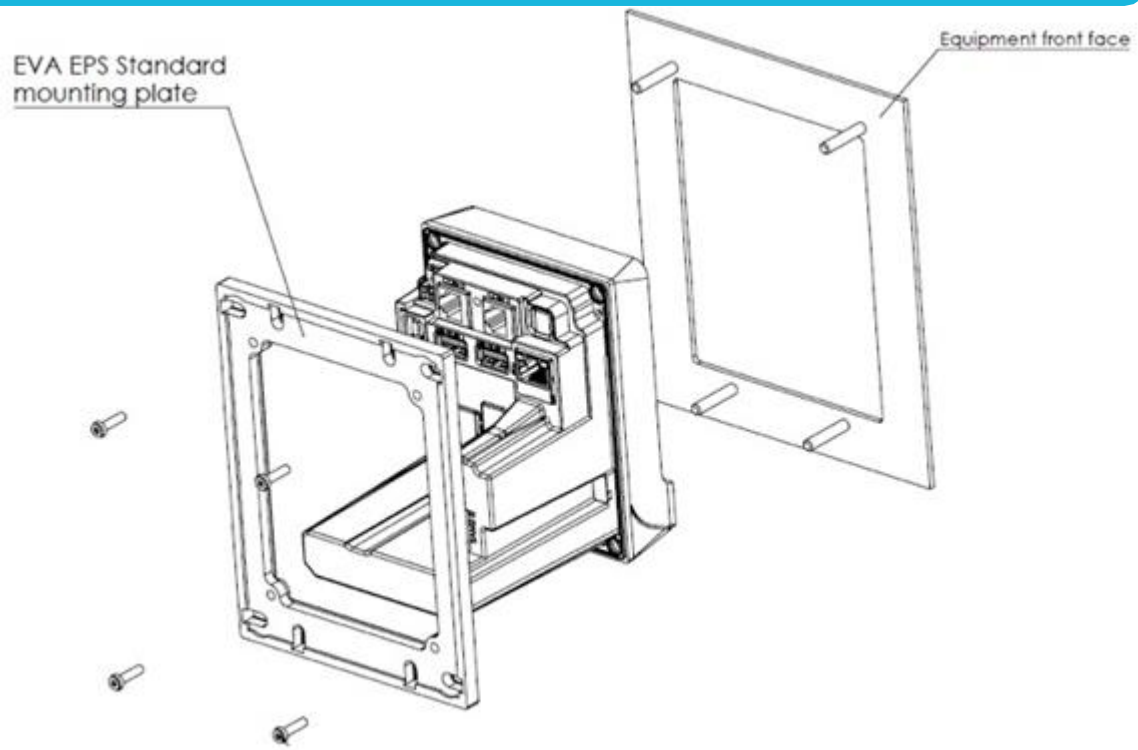
It requires a cut out in the kiosk to the EVA EPS Standard door module dimensions.
Fixing must be done by 4 M4x12 welded studs. Device requires standards hexagonal nuts for integration into a kiosk. Torque value used: 1 N.m +- 0,2.

Product can be mounted on custom EVA plate. EVA plate is provided by INGENICO.

Screw the 4 nuts M3 with a 1 N.m +- 0,2 torque. It is recommended to use washers.

CAUTION

It is required by safety regulation that EVA plate must be permanently connected to GND



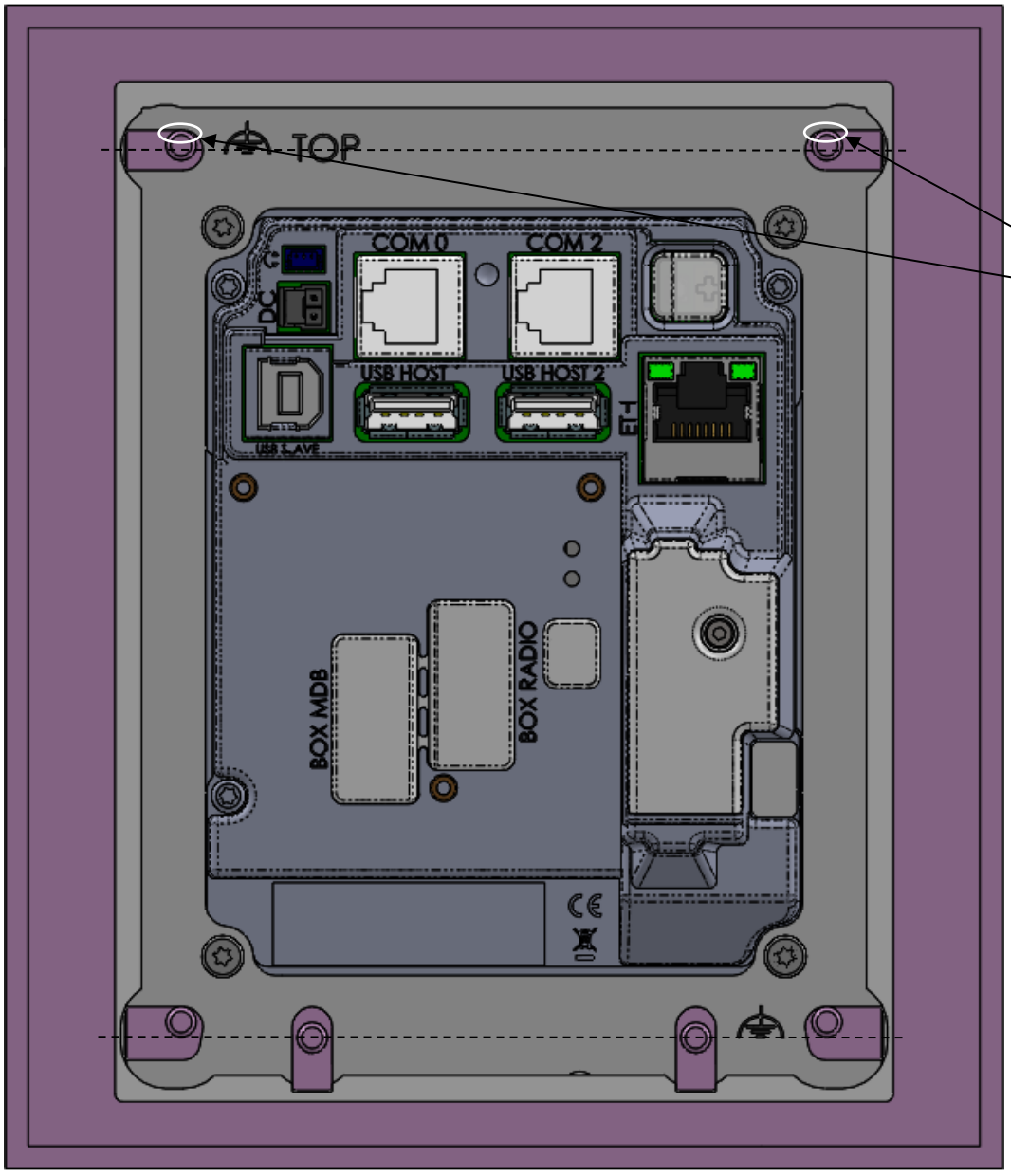
CAUTION

It is important that the device footprint surface on the kiosk must be flat and cleared of any holes and burrs to prevent from dust and water penetration in the kiosk. (IP65 standard). Rubber at the rear of the product guarantees waterproofness between EVA plate and product. Waterproofness between EVA plate and kiosk panel should be guarantee by the rubber on EVA plate. 3D step files are also available upon request.

6.2.2 IP Guarantee

EVA Plate must be fitted inside the Kiosk to guarantee IP requirements.

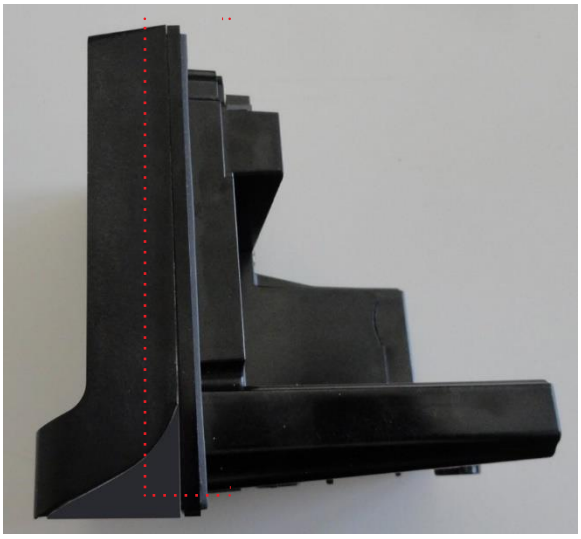
Precaution must be taken to install the device so that it sits on the studs of the kiosk, see below:

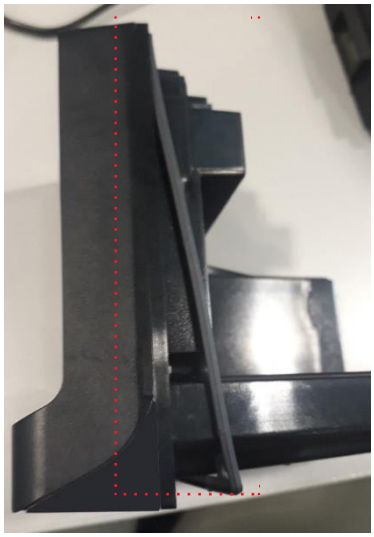


NB: the view shown above is only for information, position of bottom stubs can be different from one kiosk to another.

6.3 Product gasket

To ensure IP ratings, it is necessary to have the gasket correctly assembled.





CAUTION

IP rating is related to front face only Self/2000 LE: IP65

Self/5000 LE & Self/4000 LE: IP44

6.4 Evacuation pipe

This accessory is delivered for Self/5000 LE and Self/4000 LE to guide water inside the kiosk. We suggest using a "Y" adapter fitting for both tubes.

CAUTION

IP rating is related to front face only Self/2000 LE: IP65

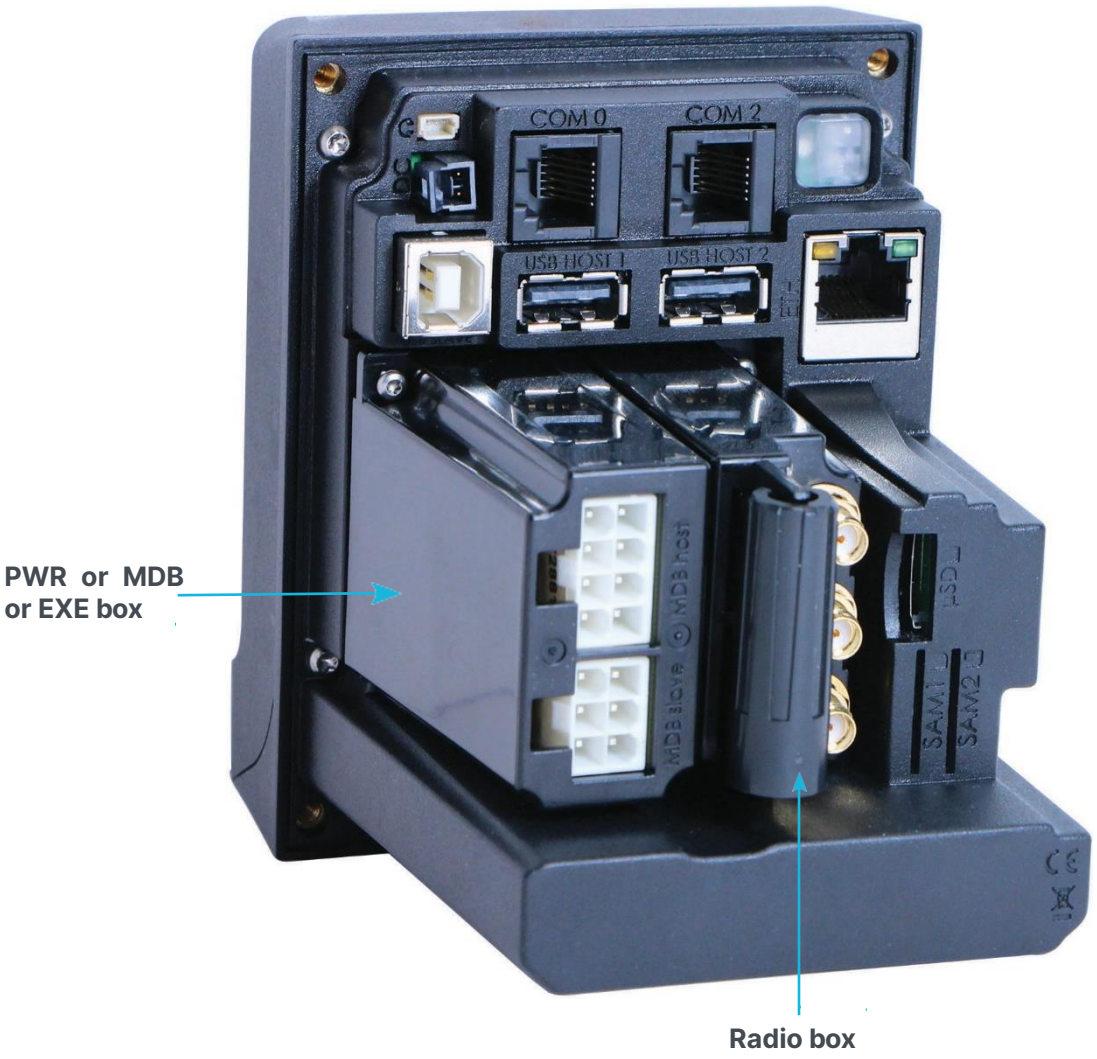
Self/5000 LE & Self/4000 LE: IP44

7. Add-on Boxes

Self/x000 LE range product can be upgraded by 3 types of add-on boxes:

The first one is dedicated to power only.

The second one is dedicated to MDB_EXE features: full MDB or full master or...
The third one is dedicated to communication. Depending on the reference it is possible to have Bluetooth and/or Radio link (3G/4G EU/US/AUS standard).

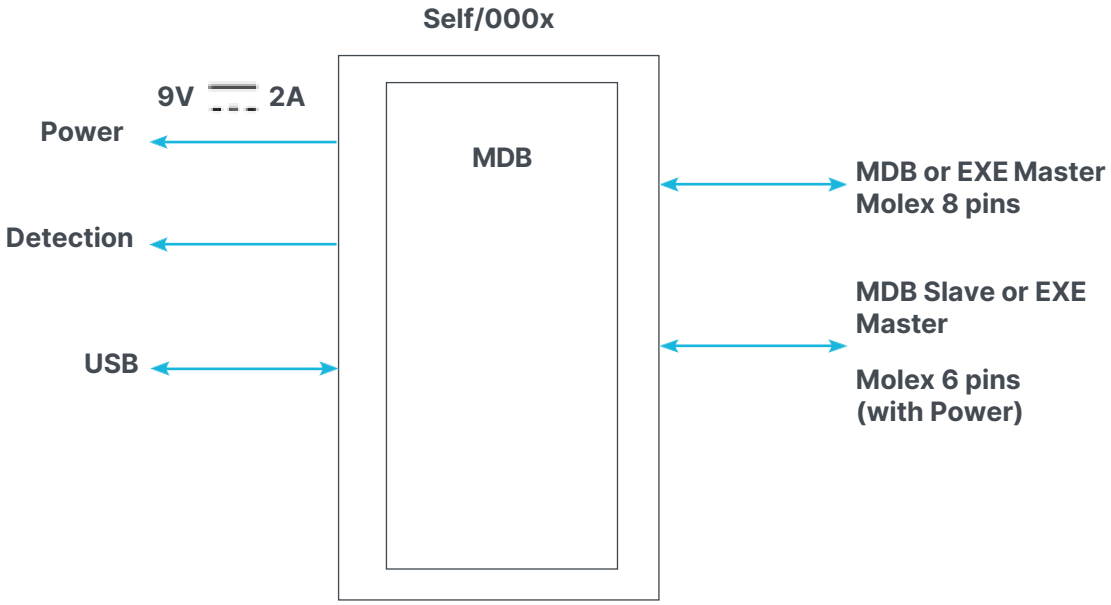


7.1 Self/000x – MDB_EXE box

7.1.1 Description

- Self/0001 (PWR) only allows Self/x000 LE product to be powered by MDB power supply 10-45V on 6 points Molex connector.
- Self/0002 (Master_Slave) has the same features as Self/0001 and allows Self/x000 LE to communicate on MDB or EXE links.
- Self/0003 (Double Master) has the same features as Self/0001 and allows Self/x000 LE to communicate on MDB or EXE links.

7.1.2 Connectivity and communications diagrams



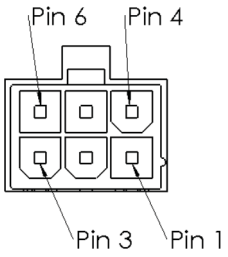
7.1.3 Connectors pin out.

7.1.3.1 Slave 6 points

The connector type is MDB 6 pins (Mini Fit® series 87827 (MOLEX)).

- Self/0002 device can be connected by MDB_EXE slave.
- Self/0003 device can be connected by MDB_EXE master.
- Self/0002 or Self/0003 are powered by 6 points connectors by power supply 10 to 45V DC.
- Check value on product label.

Pin N°	Function
1	Vin
2	GND
3	NC
4	Slave_RXD
5	Slave_TXD
6	Slave_COMMUN

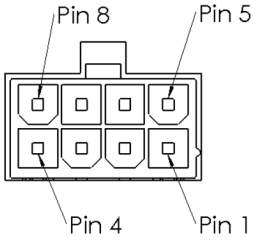


7.1.3.2 Master 8 points

The connector type is MDB_EXE master 8 pins (Mini – Fit series 87827 (MOLEX)).

Self/0002 or Self/0003 device can be connected by MDB_EXE master.

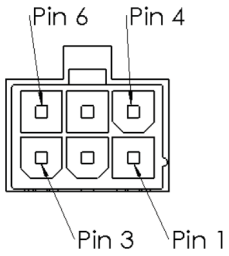
Pin N°	Function
1	NC
2	NC
3	NC
4	NC
5	Master_RXD
6	ISO_GND
7	Master_TXD
8	ISO_GND



Self/0002 or Self/0003 are powered on the 6 points connector by power supply 10 to 45V DC or 9 to 16V directly on device (Check values on product label)

7.1.3.3 Power 6 points

Pin N°	Function
1	Vin
2	GND
3	NC
4	NC
5	NC
6	NC



Self/0001 device allows to deliver power from 10V to 45DC to Self/x000 LE. The connector type is PWR 6 pins (Mini – Fit series 87827 (MOLEX)

7.1.4 Compatibility Table

Self/0002: Master 8 points & Slave 6 points

	8 points	6 points	UCM Parameters Files
MDB Slave	NC	VMC Data + Vin	UCM_SELFxxxx_10.par
MDB Master	Peripheral Data	Vin	UCM_SELFxxxx_80.par
MDB Master & MDB Slave	Peripheral Data	VMC Data + Vin	UCM_SELFxxxx_90.par
Simple EXE	VMC Data	Vin	UCM_SELFxxxx_21.par
Double EXE	VMC Data	Coiner Data + Vin	UCM_SELFxxxx_20.par

Self/0003: Master 8 points & Master 6 points

	8 points	6 points	UCM Parameters Files
MDB Master	Peripheral Data	Vin	UCM_SELFxxxx_80.par
MDB Master	NC	Peripheral Data + Vin	UCM_SELFxxxx_81.par
Simple EXE	VMC Data	Vin	UCM_SELFxxxx_21.par
Simple EXE	NC	VMC Data + Vin	UCM_SELFxxxx_23.par
Simple EXE & MDB Master	Peripheral Data	VMC Data + Vin	UCM_SELFxxxx_31.par
Simple EXE & MDB Master	VMC Data	Peripheral Data + Vin	UCM_SELFxxxx_30.par

Self/0003 device is differentiated to Self/0002 by using yellow labels.

7.2 Self/0xxx – Radio Box

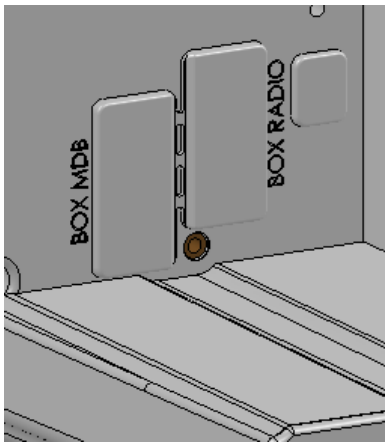
7.2.1 Description

- Self/0WBR:
  - 'W': type of radio: 0 none / 2:2G / 3:3G / 4:4G. 'B': 0 none / 5: BT.
  - 'R': used if W #0 for radio localization 0: Europe / 1: North America / 2: Australia.
- When plugged the module is identified by the parameters written in internal EEPROM.

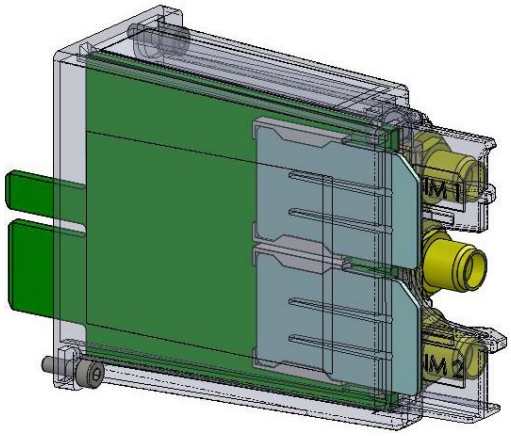
7.3 Installation

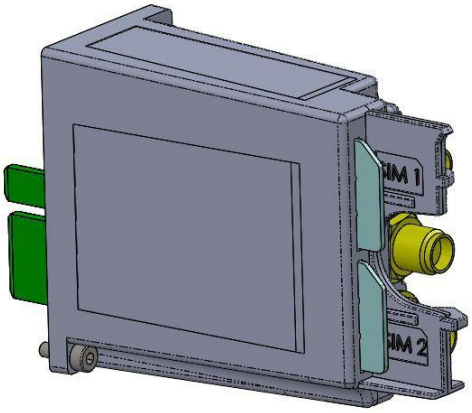
7.3.1 Box mounting

- Power off the product.
- Remove the relevant cap from the rear casing.
- Insert the add-on box.
  - Slot1 for MDB or PWR box.
  - Slot2 for Radio box.
- Screw the two screws using torque: 0,27N.m.



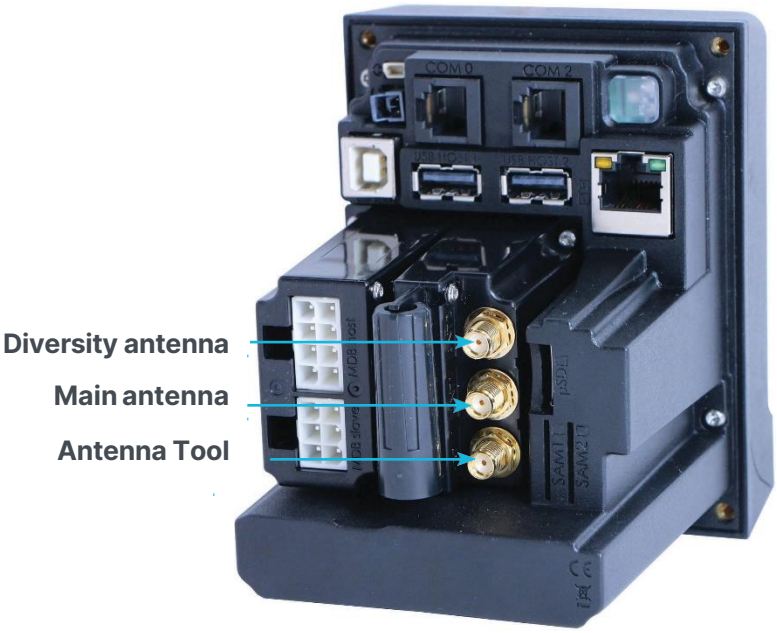
7.3.2 SIM insertion





7.4 Antenna mounting

- Remove the antenna tool from the rest position.
- Screw the antenna on the relevant connector.
- Replace the antenna tool.



CAUTION

For Compliance with FCC, IC and Regulations.

- Concerning Bluetooth Antenna, the antenna gain, including cable loss, must not exceed the limit 0.56dBi for 2,4Ghz.
- Concerning 4G Cellular antennas the antenna gain, including cable loss, must not exceed the limit 2.15dBi.

Example:

GCWPUKS-SMA from RF Solutions (ref RS component 146-3504).

GC-654 BGa/MGa from Giga Concept.

6000450 Antenna Mimo AirCard, from Netgear.

8. Maintenance

8.1 Configuration

The device supplied to you has operational configuration loaded.

In factory, software is loaded into product as well as parameter definition files.

The parameter definition file of the UCMC component is used to determine the platform and the type of protocol.
To change configuration, you must load a new parameter definition file (supplied by Ingenico). This operation can be performed using the LLT or a USB key.

For more information concerning configuration, contact Ingenico Technical Support.

8.2 Operating life

Minimum operating life of 5 years.

9. Cleaning instructions

The external front face of the contactless reader should be carefully cleaned on a regular basis.

The goal is to keep the display and the touch free of dirt and solvents.

First, unplug all the wires from the terminal during this operation. Good rules for proper cleaning of the terminal are:

- Use a soft cloth that is very slightly soaked with soapy water to clean the outside of the terminal.
- The glass has special surface treatment but must be carefully clean.
- Do not clean the electrical connections.
- Do not use in any case, solvents, detergents or abrasive products: those materials might damage the plastic or electrical contacts.
- Avoid the use of pressurized liquids.
- Avoid exposing the terminal to the direct rays of the sun.

10.Disassembling the products according to WEEE directive

10.1 End-of–life disassembly instructions

This document is intended for treatment and recycling facilities. It provides the basic instructions for the disassembly of Ingenico products to remove components and materials requiring selective treatment, as defined by EU directive 2012/19/EU, Waste Electrical and Electronic Equipment (WEEE).

Ce document est destiné aux installations de traitement et de recyclage. Il fournit les instructions de base pour le démontage de produits Ingenico afin de retirer les composants et matériaux nécessitant un traitement sélectif, tel que défini par la directive européenne 2012/19/EU, sur les Déchets d'Equipements Electriques et Electroniques (DEEE).

10.1.1 Models and descriptions/*modèles et description*

Products covered by this disassembly instructions. *Produits concernés par ces instructions de démontage*.

Product Name Nom du produit	**Product Description** Description du produit	**Product mass (g)** Masse du produit (g)
Self/2000	Unattended Compact reader	340 g
Self/5000	Unattended Compact reader	429 g
Self/4000	Unattended Compact reader	378 g

10.1.2 Components and materials requiring selective treatment / *Composants et matériaux nécessitant un traitement sélectif*

Component and materials Composants et matériaux	Quantity included in product(s) Quantité contenue dans le(s) produit(s)
Capacitors containing Polychlorinated biphenyls (PCB Condensateurs contenant du polychlorobiphényle (PCB)	0
Components containing Mercury, such as switches or backlighting lamps) Composants contenant du mercure, tels que les interrupteurs ou les lampes à rétroéclairage	0
Batteries Piles et accumulateurs	1
Printed circuit boards greater than 10 cm2 Cartes de circuits imprimés de plus de 10 cm2	3 Self/2000 LE 5 Self/5000 LE 5 Self/4000 LE
Toner cartridges Cartouches de toner	0
Plastic containing brominated flame retardants Matières plastiques contenant des retardateur de flamme bromés	0
Asbestos waste and components which contain asbestos Déchets d'amiante et composants contenant de l'amiante	0

Cathode ray tubes Tubes cathodiques	0
Chlorofluorocarbons (CFC), Hydrochlorofluorocarbons (HCFC) or Hydro-fluorocarbons (HFC), Hydrocarbons (HC) Chlorofluorocarbones (CFC), hydrochlorofluorocarbone (HCFC) ou hydrofluorocarbone (HFC), hydrocarbures (HC)	0
Gas discharge lamps Lampes à décharge	0
Liquid crystal displays (LCD) of a surface greater than 100 cm² and all those back-lighted with gas discharge lamps Écrans à cristaux liquides (LCD) d'une surface supérieure à 100 cm² et tous les écrans rétroéclairés par des lampes à décharge	0
External electric cables Câbles électriques extérieurs	0
Components containing refractory ceramic fibres Composants contenant des fibres céramiques réfractaires	0
Components containing radioactive substances Composants contenant des substances radioactives	0
Electrolyte capacitors measuring greater 2,5 cm in diameter or height Condensateurs électrolytiques mesurant plus de 2,5 cm de diamètre ou de hauteur	0

10.1.3 Self/2000 LE product disassembly process / *Processus démontage produit Self/2000 LE*

Basic steps to remove components and materials previously identified and requiring selective treatment.

Etapes de base pour retirer les composants et matériaux précédemment identifiés et nécessitant un traitement sélectif.

Step Etape	Product disassembly process Processus de démontage du produit
1	**Remove the 4 screws of the back face of the terminal – remove the bottom case of the terminal /** Retirez les 4 vis de la face arrière du terminal - retirer le fond du boîtier du terminal
2	**Disconnect Connector Board from the electronic main board** Déconnecter la carte Connexion de la carte électronique principale
3	**Remove the spacer from the connector board** Retirer le support carte de la carte connexion
4	**Disconnect the battery from the electronic main board** Déconnecter la pile de la carte électronique principale
5	Remove the SAM board from the main electronic board Déconnecter la carte SAM de la carte électronique principale
6	Remove the button battery from SAM electronic board Oter la pile bouton de la carte SAM
7	Remove the screws of the camera card board and disconnect the ribbon cable Retirer la vis de la carte caméra et déconnecter le flex.
8	Disconnect the antenna ribbon cable and remove the two last screws Déconnecter la nappe antenne et ôter les deux dernières vis
9	Remove the main board disconnecting the touch panel board. Retirer la carte principale en déconnectant la carte écran tactile
10	Remove the 6 screws of the support touch panel and remove it Retirer les 6 vis du support écran tactile et le retirer
11	Remove the whole touch screen (slide it through the antenna) Retirer l'écran tactile en le faisant glisser au travers de l'antenne
12	Remove antenna and screen gasket Retirer l'antenne ainsi-que le joint écran
13	Remove the screw from camera support and remove it Retirer la vis du support camera et enlever le sous ensemble.
14	Remove the camera sensor from the camera support and camera gasket. Retirer la camera de son support et du joint d'étanchéité.

10.1.4 Self/5000 LE product disassembly process / Processus démontage produit Self/5000 LE

Basic steps to remove components and materials previously identified and requiring selective treatment.

Etapes de base pour retirer les composants et matériaux précédemment identifiés et nécessitant un traitement sélectif.

Step Etape	Product disassembly process Processus de démontage du produit
1	**Remove the 4 screws of the back face of the terminal – remove the bottom case of the terminal** / Retirez les 4 vis de la face arrière du terminal - retirer le fond du boîtier du terminal
2	**Disconnect Connector Board from the electronic main board** Déconnecter la carte Connexion de la carte électronique principale
3	**Remove the spacer from the connector board** Retirer le support carte de la carte connexion
4	**Disconnect the battery from the electronic main board** Déconnecter la pile de la carte électronique principale
5	**Remove the SAM board from the main electronic board** Déconnecter la carte SAM de la carte électronique principale
6	**Remove the button battery from SAM electronic board** Oter la pile bouton de la carte SAM
7	**Remove the screws of the camera card board, disconnect the ribbon cable and unstick the FPC from reader PCB** / Retirer la vis de la carte caméra, déconnecter le flex et décoller le flex du PCB lecteur
8	**Disconnect the antenna ribbon cable and remove the two last screws** Déconnecter la nappe antenne et ôter les deux dernières vis
9	**Remove the main board disconnecting the touch panel board and the reader.** Retirer la carte principale en déconnectant la carte écran tactile ainsi que le sous ensemble lecteur.
10	**Disconnect the ribbons cables from touch panel board** Déconnecter des deux nappes du circuit électronique écran tactile
11	**Remove the 6 screws of the support touch panel and remove it as well as light guide** Retirer les 6 vis du support écran tactile et le retirer ainsi que le guide optique
12	**Remove the whole touch screen (slide it through the antenna)** Retirer l'écran tactile en le faisant glisser au travers de l'antenne
13	**Remove antenna and screen gasket** Retirer l'antenne ainsi-que le joint écran.
14	**Remove the screw from camera support and remove it** Retirer la vis du support camera et enlever le sous ensemble
15	**Remove the camera sensor from the camera support and camera gasket.** Retirer la camera de son support et du joint d'étanchéité.

16	**Remove the magnetic head** Enlever la tête magnetique
17	**Disconnect and remove the flex LED** Déconnecter et ôter le flex LED
18	**Remove the 6 screws and separate all parts** Devisser les 6 vis et séparer tous les éléments

10.1.5 Self/4000 LE product disassembly process / Processus démontage produit Self/4000 LE

Basic steps to remove components and materials previously identified and requiring selective treatment.

Etapes de base pour retirer les composants et matériaux précédemment identifiés et nécessitant un traitement sélectif.

Step Etape	**Product disassembly process** Processus de démontage du produit
1	**Remove the 4 screws of the back face of the terminal – remove the bottom case of the terminal.** / Retirez les 4 vis de la face arrière du terminal - retirer le fond du boîtier du terminal.
2	**Disconnect Connector Board from the electronic main board.** Déconnecter la carte Connexion de la carte électronique principale.
3	**Remove the spacer from the connector board.** Retirer le support carte de la carte connexion.
4	**Disconnect the battery from the electronic main board.** Déconnecter la pile de la carte électronique principale.
5	**Remove the SAM board from the main electronic board.** Déconnecter la carte SAM de la carte électronique principale.
6	**Remove the button battery from SAM electronic board.** Oter la pile bouton de la carte SAM.
7	**Remove the screws of the camera card board, disconnect the ribbon cable and unstick the FPC from reader PCB.** / Retirer la vis de la carte caméra, déconnecter le flex et décoller le flex du PCB lecteur.
8	**Disconnect the antenna ribbon cable.** Déconnecter la nappe antenne.
9	**Remove the main board and the reader, disconnect them.** Retirer la carte principale et le sous ensemble lecteur, les déconnecter.
10	**Product disassembly process** Processus de démontage du produi
11	**Disconnect the keyboard from the main board.** Déconnecter le clavier de la carte principale.
12	**Remove the display support and foam display and disconnect the display.** Retirer le support écran, son joint et déconnecter l'écran.

13	**Remove the keyboard light guide and the rubber keyboard.** Retirer le guide lumière du clavier et la membrane du clavier.
14	**Remove the 6 screws of front lens and card entrance light guide.** Retirer les 6 vis de la vitre devant et le guide lumière de l'entrée carte.
15	**Remove the card entrance light guide.** Retirer le guide lumière de l'entrée carte.
16	**Remove the magnetic head.** Enlever la tête magnetique.
17	**Disconnect and remove the flex LED.** Déconnecter et ôter le flex LED.
18	**Remove the 6 screws and separate all parts.** Devisser les 6 vis et séparer tous les éléments..

11. Standards

11.1 Electrical characteristics

11.1.1 Self/2000 LE - Self/5000 LE - Self/4000 LE

- Max power supply
  - 16Vdc
- Back up battery life
  - 1 storage year + 7 years in field at 45 days/year storage rate (25°C)

11.1.2 Self/0001 & Self/0002 & Self/0003

- Max power supply
  - 10-45V ⎓ 2A

11.1.3 Power Consumption Values

Please find in table below an overview consumptions tests done on Self/x000 LE.

Test Configuration: SDK 14.4.1l with Add-on Unattended V2.11.1 with sample demos, exploitation mode.

HW Configuration: External Power Supply 12 V

Important: please note that values in the table below for Self/2000 LE and Self/5000 LE, are obtained with deactivation of wake up by Touch screen.

Recommendation is to deactivate this wake-up mode for optimal consumption savings doing the following:

- Directory: |CMP_SDK-1404xx_xxx_Patchx|bin|SDKPlatform|Tools|HW_TETRA|UnsignedTerminalConfig|config|SELF2000 (or SELF5000)

- File: local.desktopenv.inactivityHandler.

- Change: 'wakeUpOnTouch:' to "false".

Reference	Card entrance Green ON BL Display 100%	Card entrance Green OFF BL Display 100%	Card entrance Green OFF BL Display 50%	Card entrance Green OFF BL Display 10%	Light Sleep Mode	Deep Sleep Mode	With 4G Add-On
Self/2000 LE	No card entrance	117 mA	97 mA -17 %	85 mA -27 %	2.0 mA -98 %	200uA	5.5mA
Self/4000 LE	177 mA	153 mA -14 %	121 mA -31 %	97 mA -45 %	2.3 mA -99 %	350uA	5.5mA
Self/5000 LE	138 mA	114 mA -18 %	92 mA -33 %	80 mA -42 %	2.3 mA -98 %	350uA	5.5mA

Recommendations:

- Switch OFF Card Entrance if no payment required.
- Reduce Backlight levels in a lightly environment.
- Use wake-up process available on Self Device to save energy:

For light sleep mode / instantaneous wake-up:

/ Press Green Key (Self/4000 LE).

/ Insert Card (Self/4000 LE & Self/5000 LE).

/ Event on pin 1 of COM 2 (Self/4000 LE, Self/4000 LE & Self/5000 LE).

/ Press Touch (Self/2000 LE & Self/5000 LE). *To deactivate for optimal consumption savings*.

For deep sleep mode / wake-up approx. 30 sec:

/ Press Green Key (Self/4000 LE).

/ Insert Card (Self/4000 LE & Self/5000 LE).

/ Event on pin 1 of COM 2 (Self/4000 LE, Self/4000 LE & Self/5000 LE).

11.2 Temperature and humidity

- Operating & Storage conditions:
  - / Operation conditions:
    - Relative humidity: 85% non-condensing at 40°C.
    - Operational temperature range: -20 °C to +65 °C.
    - Functional temperature range: -20 °C to +70 °C.
  - / Storage conditions:
    - 85% non-condensing at 55°C.
    - External temperature range: -20 °C to +70 °C.

*65°C is a maximum using temperature for user safety (IEC 60950). The product is operational up to 70°C with no tampering issue.

11.3 Environmental specification continued

- Average Power device waiting for host solicitation:
  - / Storage conditions:
    - Front face shock resistance: IK09.
    - Vibrations resistance:

      NF EN 60068-2-6 and the below conditions (10 tests sequences per axis) :

      From 5Hz to 9Hz with 3,3mm amplitude. From 9Hz to 200Hz with 10m/s² acceleration.

      From 200Hz to 500Hz with 15m/s² acceleration. Endurance 30 mn on each resonance frequency.
  - / Bumps resistance:

    NF EN 60068-2-29. E

    Each direction, 500 drops 1/2 sinus 25g - 6ms
  - / Natural events:
    - Water and dust resistant IP65 (Self/2000 LE front face only); IP44 (front face only) (Self/5000 LE and Self/4000 LE).
  - / Degradation specification:
    - Vandal resistant.
    - Certified anti-tamper and attack resistant.
  - / Drop:
    - 1,2m on concrete (TBC)

11.4 CE marking

CE standard compliance marking certifies that the product stipulated below:

Conforms with the relevant Union harmonization legislation: RE Directive 2014/53/EU and Ro HS Directive 2011/65/EU with amendment (EU) 2015/863.

11.5 Certificate expiration

After 10 years without going in repair center, certificate will expire, and the terminal needs to go in repair center for:

- Renewal of certificate
- Internal battery replacement

11.6 IC Statements

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (e.i.r.p.) is not more than that necessary for successful communication. Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante. "This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions : (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device. Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement. This device complies with ISED radiation exposure limits set forth for general population. This device must not be collocated or operating in conjunction with any other antenna or transmitter. Ce présent équipement est conforme aux limites d'exigences d'exposition RF. Cet équipement ne doit pas être installé à proximité ou être utilisé en conjonction avec un autre transmetteur ou antenne.

11.7 Fcc Statements

FCC standard compliance marking certifies that the product stipulated below: Self/2000 LE, Self/5000 LE, Self/4000 LE, Self/045x

Conforms to the following harmonized standards: part 15 of the FCC rules
This class (B) digital apparatus complies with industry Canada License-exempt RSS standard(s) Information to users: Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception which can be determined by turning the equipment off and on, the user is encouraged to try to correct interference by one or more of the following measures :

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with FCC radiation exposure limits set forth for general population. This device must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.
This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

11.8 Environment (WEEE, Batteries and Packaging)

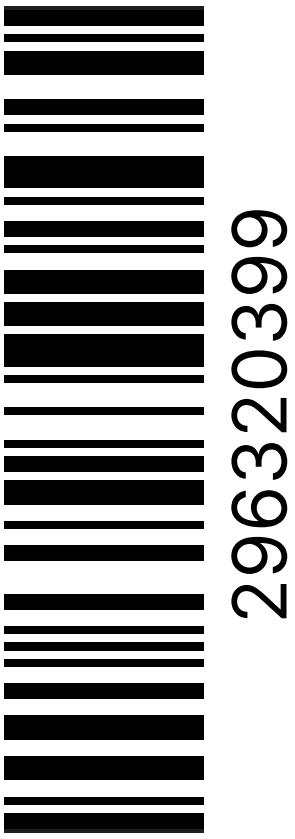
This product is labelled in accordance with European Directives 2012/19/EU concerning Waste Electrical and Electronic Equipment (WEEE) and 2006/66/EC concerning Batteries and Accumulators. Those provisions are requiring producers and manufacturers to become liable for take-back, treatment and recycling upon end of life of equipment and batteries.

The associated symbol means that WEEE and waste batteries must not be thrown away but collected separately and recycled.

Ingenico ensures that efficient collection and recycling schemes are set-up for WEEE and batteries according to the local regulation of your country. Please contact your retailers for more detailed information about the compliance solution in place for disposing of your old product and used batteries.

Packaging waste must also be collected separately to assure a proper disposal and recycling.

Please note that proper recycling of the electrical and electronic equipment and waste batteries will ensure safety of human health and environment.



www.ingenico.com

13-17 rue Pagès, 92150 Suresnes – France

Banks and Acquirers International Holding SAS / 814 767 216 RCS Nanterre