59 Victor Hugo Avenue
75116 Paris
France

Famoco FX925F multimodal validator

CONFIGURATION AND OPERATION MANUAL

Version	1.0
Date	October/30/2019
Status	Approved
Number of pages	17

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I OVERVIEW

The FX925F is a multimodal validator dedicated to business transactions. Equipped with a barcode reader, and anEMV/NFC reader, the terminal covers many use cases, such as public transportation, employee attendance, security ID check.

The terminal has a modular structure and can be installed either on a flat surface (wall or plate) or attached to a pole.

PURPOSE AND AUDIENCE

This document contains the elements necessary for the commissioning and operation of the Famoco's FX925F validator.

This document is intended for the technical teams responsible for the configuration of the device and operation of the service.

CONTENT OF THE PRODUCT

The complete solution of the FX925F validator is composed of:

- A back-casing that constitutes the mounting support, presented as a bar or wall attachment system, including the power electronics. The mechanical installation and electrical installation of this part is the subject of a specific physical installation manual.
- A front-casing, sealed under warranty, containing all the electronics and the intelligence of the device. This manual focuses specifically on the configuration of this part.

Both front and back casings fit together to make the complete solution.

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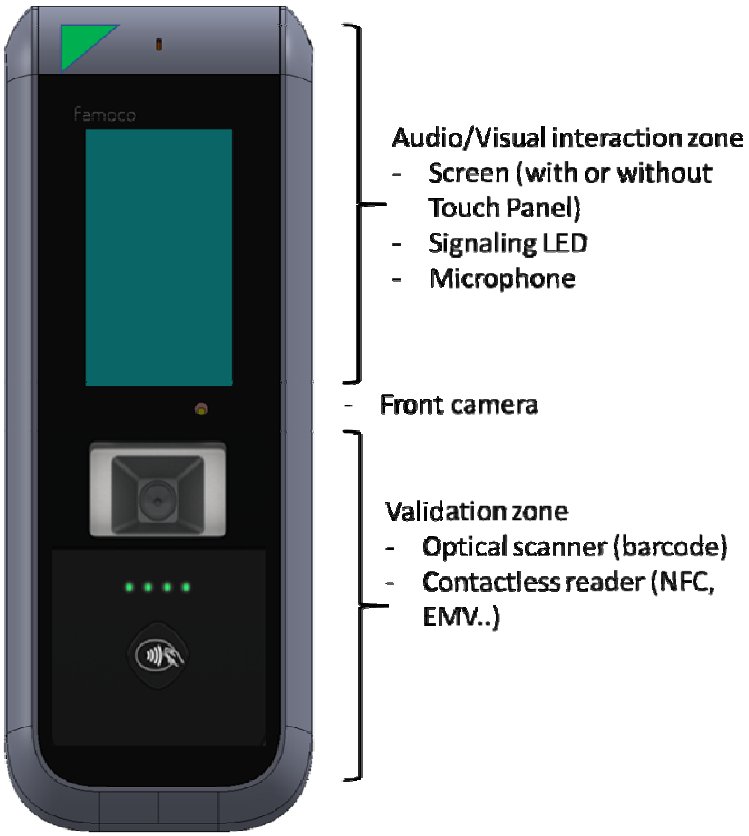
IPRESENTATION OF THE FRONT-CASING

DISTRIBUTION OF ELEMENTS

One differentiates on the front side:

- On the top half, the elements for interacting with the user:
  - A color screen with touch surface.
  - An LED light, application controllable, allowing a luminous return in green, red or blue color on the done operation.
- On the central part: a low-resolution front camera, in order to answer certain cases of use (low-resolution photo/video capture, detection of Movement....),this camera is unavailable for barcode Reading.
- On the lower half, the validation zones: reading of the contactless cards and/or Barcode.

Note: A sound feedback is possible, controlled by application, with an audible audio output at the back of the device.



BATTERYHATCH

The hatch on the back of the front-casing is intended to protect the elements accessible by the operator.

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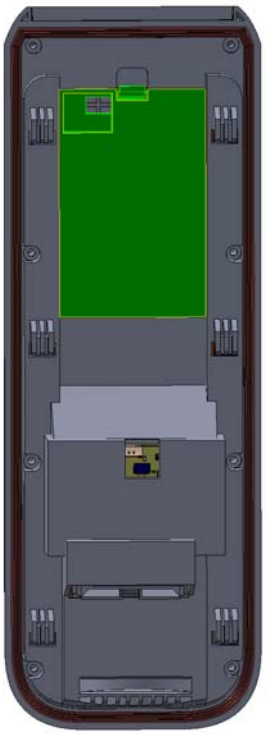
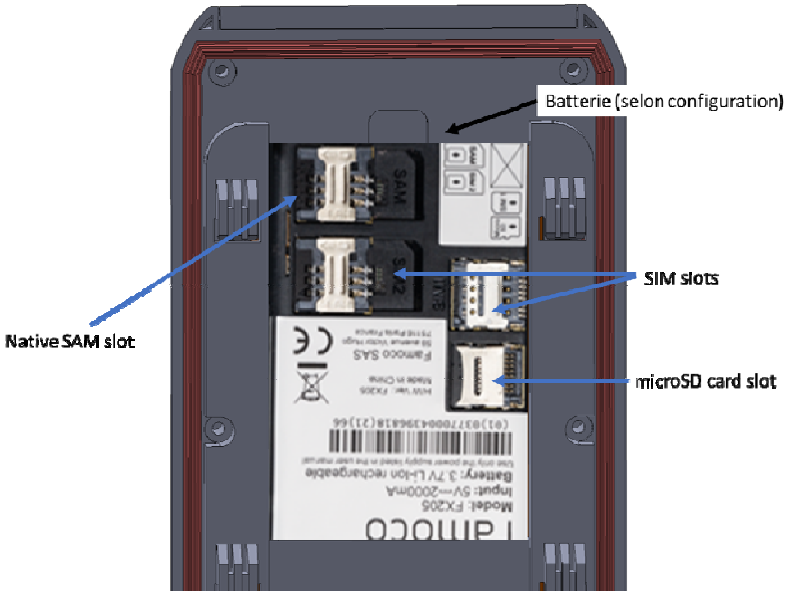


It can be removed to access the following elements:

- Removable battery (this battery can be bought or not based on the deviceconfiguration)
- SIM card slots (x2)
- SAM slot (x1)
- Memory Extension TF card (MicroSD) slot (x1)



Details on the different slots available:

- Slot SIM1: Location for **Main SIM Card**. This location is preferred for the main SIM card, in Micro SIM format (3FF).
- Slot SIM2: Slot for the secondary SIM card, in Mini SIM format (2FF).
- Slot SAM: Location for the**SAM element**,in Mini SIM (2FF) format.
- Slot SD: Location for the card micro **SDMemory** card.

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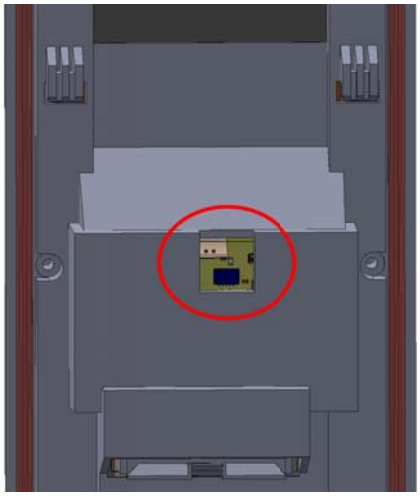
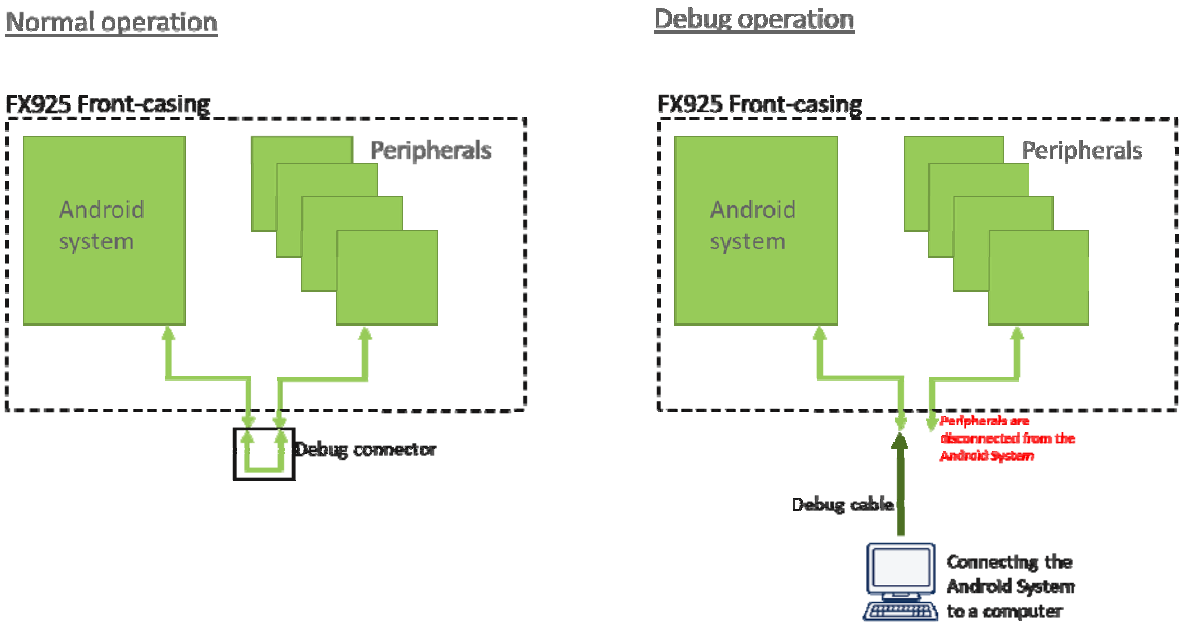
DEVELOPMENT CONNECTOR

The front-casing has a visible connector at the rear, to be used for development and support purposes.



The connector permanently carries a shunt (debug) connector during nominal operation. However, this connector can be removed to connect a specific “debug” cable allowing to:

- Connect to the front-casing internal peripherals
- Connect to the Android system (traces recovery, logs, injection of software...)



While the “debug” cable is connected, the different peripherals of the device (scanner barcode, EMV reader) are not functional.

The “debug” cableis proposed as an accessory, not included by default with the product.

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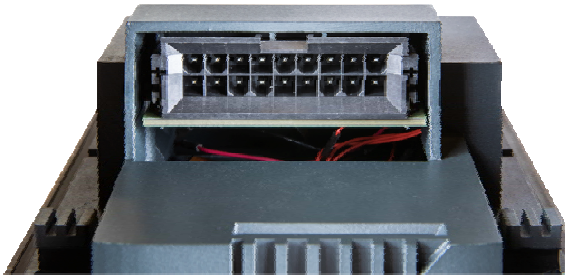
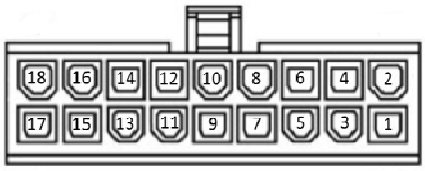
CENTRAL CONNECTOR

The front-casing shows a central connector that plugs with the back-casing when sliding it onto the back-casing, during the device assembly. Several signals, ports and power go through it, as detailed for information on the following illustration.



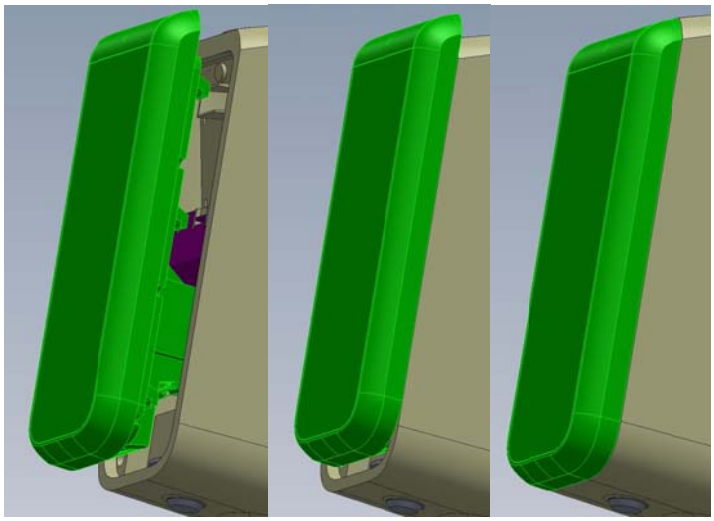


PIN	POWER	USB	GPIO
1			GPIO 6
2	+12/24 VDC		
3			GPIO 5
4			GPIO 4
5	GND		
6	+5V VDC		
7		USB 6 : D-	
8		USB 6 : D+	
9		USB 6 : GND	
10		USB 6 : V+	
11		USB 5 : D-	
12		USB 5 : D+	
13		USB 5 : GND	
14		USB 5 : V+	
15		USB 4 : D-	
16		USB 4 : D+	
17		USB 4 : GND	
18		USB 4 : V+	

ISERVICE

MECHANICAL INSTALLATION

The validator must be installed vertically. The front-casing does not require any wiring, it is enough to slide it on theback-casing support so that all connections are made by simple contact. and then you could lock these two parts through the locker in the bottom.



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POWER ON, STANDBY AND SHUTDOWN

The device will automatically switch on when the power is detected. The device will synchronize with the MDM platform, update its configuration and the installed applications.When fully turned on, according to the configuration, the color screen will show the main system interface of Famoco, or the Customer's ownboot animation ("Kiosk" mode).

The standby of the device is controlled by the running application. The application must monitor the conditions of usingcondition of the device (system time, power conditions...) in order to force the device to the standby status to reduce its consumption, if necessary.

Forcing standby is mandatory when the validator is operating under battery and the external power to the device has been turned off. In this case, a standby in less than 5 minutes is strongly recommended in order to save the battery charge.

The standby state can be quit either by decision of the application (system event) or detecting the external power if it was cut off.

The shutdown method varies depending on whether the device's configuration includes a battery or not. If a battery is present, the device will shut down automatically when the charge level drops below 4%. If there is no battery included, the device Will turn off as soon as the power is cut.

CONTACTLESS READING AND BARCODE SCANNING

The FX925 validator have an EMV/NFCcontactless card reader and an optical scanner for barcode reading.

The EMV/NFC reader is able to read contactless cards using the standard ISO-14443 type A/B/B'. The precise list of accepted technologies is available on the product's technical sheet.

The optical scanner is capable of reading 1d and 2d barcodes. It includes a LED lighting in white light, not harmful to the eyes in case of direct exposure. The illumination allows reading on different supports, smartphone or paper screen, and any external light conditions. The list of Barcode is available on the product technical sheet.

Barcode reading performance depends on the density and physical size of the barcode itself. For an optimum reading from the frontal glass, it is recommended not to exceed 40x40mm size for 2d and 50mm length for 1d codes. A larger size will be read but requires a distance from the window and a precise gesture from the user.

CONFIGURING THE VALIDATOR AND INSTALLING APPLICATIONS

The Famoco's Android system includesnatively a remote management agent named MDM (*Mobile Device Management*), together with a SaaS service on the web. This is the major tool for configuring the remote devices and managing their lifecycles.

Deployed terminals are organized by *Fleets*, and the configuration is grouped by *Profiles*. The set of applications to be installed on the deployed terminals will be stored in an isolated a secure application container, then added on the configuration profile and pushed to the fleet terminals.

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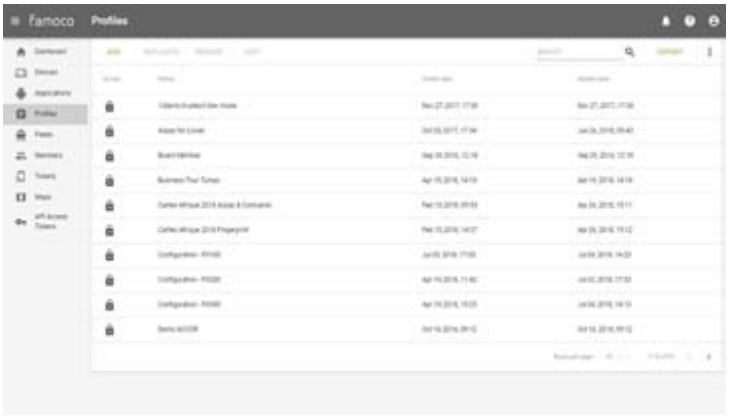
Application setup and installation is done through three key steps, fully managed in the MDM Web interface, as follows:

Step 1: Loading applications (APK files) on the dedicated storage space of MDM.

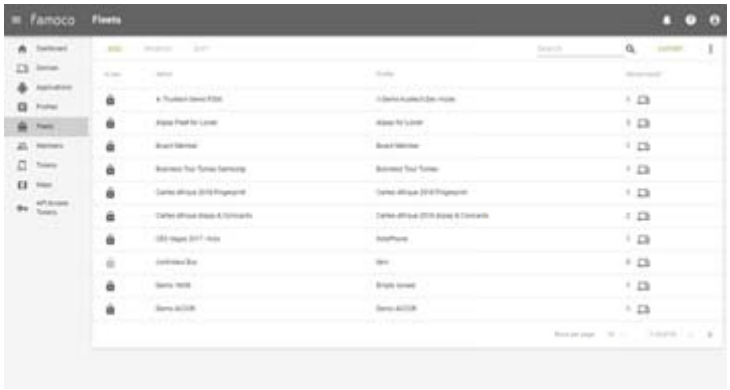
In this step, the customer will be free to store a certain number of applications on thisprivate MDM account.



Step 2: Configuring a Profile

This menu allows customer to select the different parameters of the terminals.

The concept of the profile covers the choice of the applications deployed on a device or group of devices, as well as the parameters of connectivity and user interfaces.



Step 3: Creating fleets

This function is to apply the same usage profile to a group of devices, as set up in step 2 above.

For more information of the Famoco MDM, refer to the online documentation available at:

https://help.famoco.com/mdm/quick-start/

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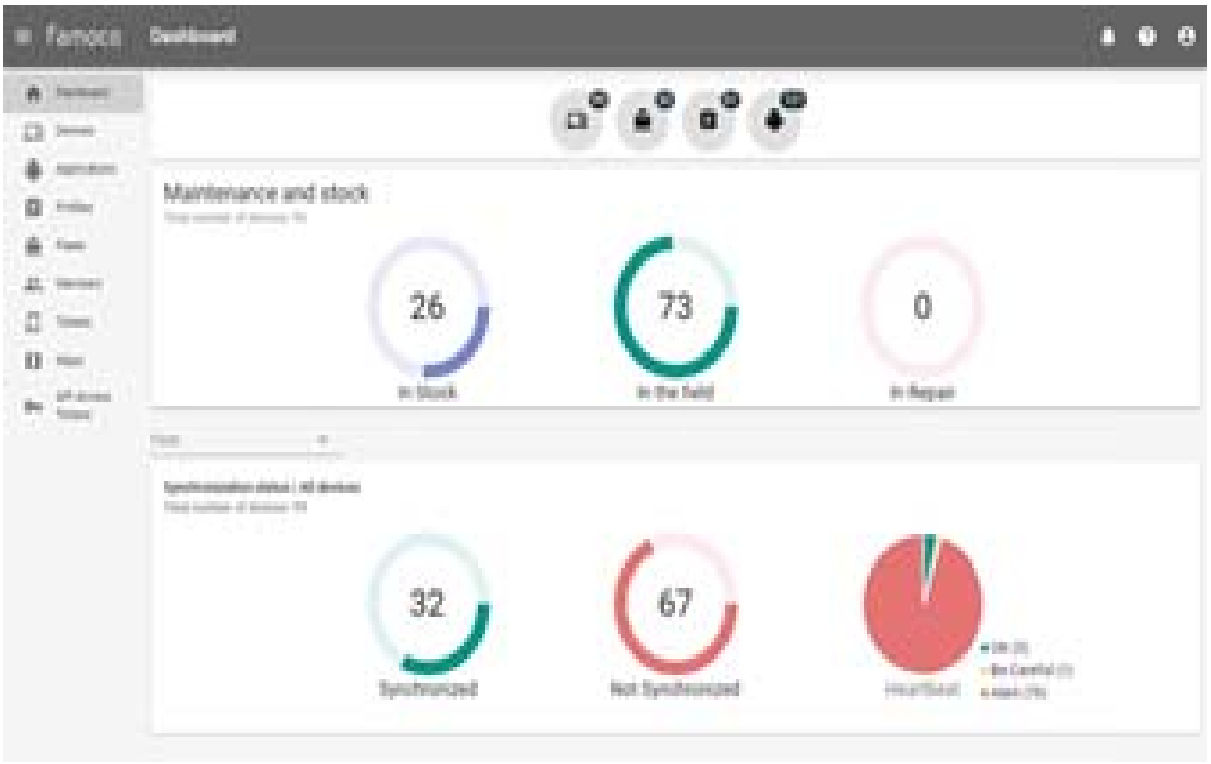
IOPERATION OF THE VALIDATOR

LIFE CYCLE MANAGEMENT

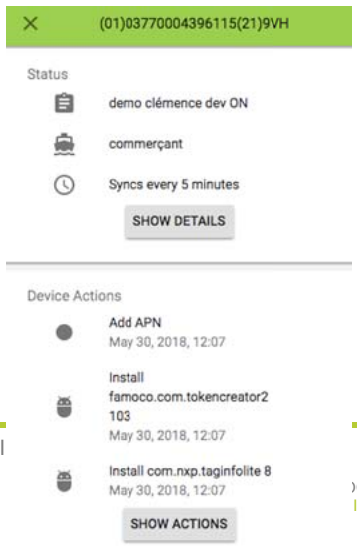
All terminals configured on the MDM raisea visible sync status regularly on the home page for fleets of terminals or for individual devices.

The MDM interface allows monitoring of the deployed devices in the field, with a dashboard in the form of:



And to quickly view the state of the park and the synchronization status of the terminals.

- Terminals Synchronized /Not Synchronized
- Terminals deployed/In stock/in repair
- Sync status (*Heartbeat*) of deployed terminals



MDM allows a complete monitoring of the device history, including changes made on the devices, such as installing or changing versions of applications, or changing the connectivity settings.

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The menu " Device”allows you to trace the configuration history of a terminal or group of terminals.

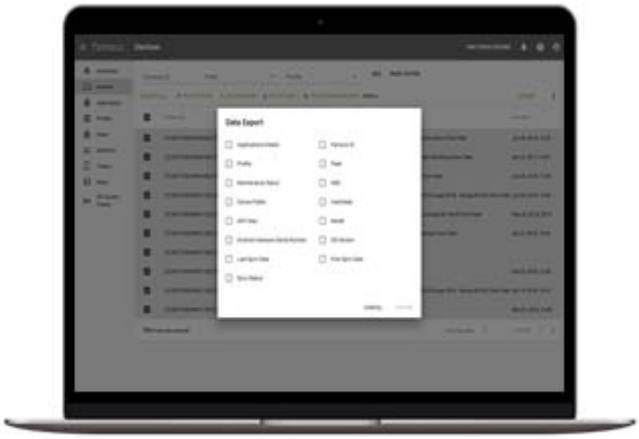
For further information, please refer to the documentation Famoco Online, available at:

https://help.famoco.com/

ADVANCED FEATURES

- **Data Export**

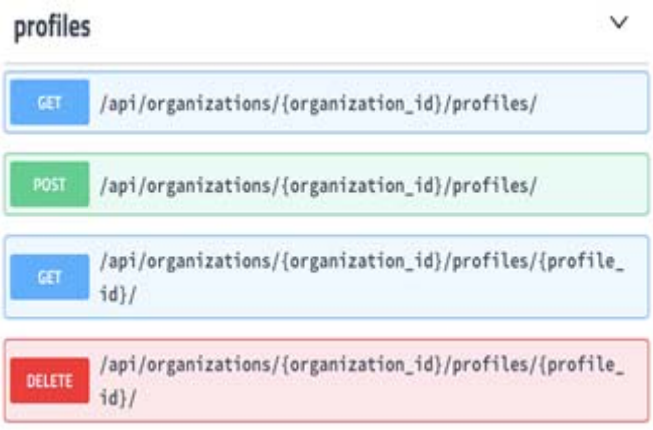
It is possible for the fleet administrator to export data from the MDM platform in Csv.Format. The data type to be exported is fully configurable from the fields present on the MDM interface.



- **Integration with other server applications**

As part of large-scale deployments, the Famoco products and the MDM are usually intended to interact with other business applications already deployed by customers.

In order to facilitate the integration of the MDM in this environment, we offer the possibility of exploiting APIs (REST). This is especially useful for limiting the needs of human interaction between the Famoco MDM and the other business applications of the client.



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- ## Selection of collected data

Custom fields can be used to generate specific application fields that will be visible in MDM interface.

For example, this enables specific business data (for example, validator Identifier) to appear on the dashboard of MDM.

- ## Management of User rights

To better splitMDM access, we have defined 4 main platform access roles with different privilege levels.

The purpose of this feature is to allow people with different skills and privilege levels to access the platform without posing a security risks for the devices in the field. You can also customize these profiles to suit your project's specific needs.

The currently defined roles are shown in the table below. As an illustration, the person in charge of supervising the activity without permission to modify the application will have an "observer" role.

You can assign 4 types of user role with different rights in the **FMS**, as it's shown in the table below:

Roles\Access	Profiles	Bill	Applications	Membership
Observer	Read	Read	Read	Read
Admin	Add/Change/Delete/Read	Read	Add/Change/Delete/Read	Add/Change/Delete/Read
Fleet Manager	Add/Change/Delete/Read	**N/A**	Add/Read	**N/A**
Device Manager	Change/Read	Read	Read	Read

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IDEVELOPMENT RECOMMENDATIONS

BEST PRACTICES

The Famoco validator runs on anAndroid AOSP system. So most libraries and APIs fromStandard Android are available natively.

It is strongly recommended that you abide by the Java-style rules Code recommended by AOSP:

Https://source.android.com/setup/contribute/code-style

In the same way strictly respect the Application Permissions, specific to a secure operating system.

Please note that the Famoco's is using an secure Android operating system. This security is achieved by removing all applications and services that can leak metadata to 3rd party or external servers. That is why, **there are no *Google Services installed*.**

APPLICATION DEVELOPMENT

Famoco Provides an online documentation (in English) to guide the few specific features of the system Famoco (NFC reading Examples...), available online at:

https://help.famoco.com/developers/

The details of the peripherals specific to the FX925F validator, external to the Android system, are described below:

i. Using the barcode reader

Anspecific SDK (Software Development Kit), documentation and examples will be provided, to assist the programming and design of the software specific to the product.

ii. Usingthe EMV/NFC reader

This module is provided by Ingenico. All the development material and SDKs are provided by Ingenico.

iii. Using the native SAM slot

Refer to the online documentation Famoco:https://help.famoco.com/developers/nfc/external-element/

iv. Using the LED signal

A specific library will be provided for the I/O ports (GPIO), controlling the signaling LED, as well as documentation and examples, for programming assistance and design of the software specific to the Famoco's FX925F validator.

DIFFICULTY IN SLIDING THE FRONT PANEL

If installing the front-casing is difficult, during the mechanical installation, to slide it on its back-casing support, you can use a silicone, based lubricant, usually packaged as aerosols. Translucent, this lubricant does not leak or damage the rubber or plastic. This lubrication allows to improve the flexibility of the gasket while guaranteeing the sealing.

OTHER PROBLEMS

Refer to the table below to identify and resolve the problem.

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Problem / Question	Solution
The device doesn't power on	Check that the back-casing is properly installed and powered
The device still does not turn on	If the unit is operating with a battery, check that the battery charge level is at least 4% in order to trigger the start-up.
The device does not sync	Verify that connectivity is enabled on the MDM profile and that the device has the networks (GSM or Wifi) within its reach
I need to turn off the device	Turn off the power supply. If the unit is supplied with a battery, open the hatch at the rear of the front-casing and remove the battery.
I changed the configuration on the MDM tool, how to make sure that the new parameters are considered?	Wait for the synchronization interval set to consider the new settings.

If the problem persists, contact the support team at Famoco :Support@famoco.com

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IMAINTENANCE

OPERATING ENVIRONMENT

During installation, avoid the direct sunlight exposure, and permanent exposure to meteorological elements (rain, snow).

The validator device is designed to operate nominally with an ambient temperature between-10 °c and + 50 °c, with a humidity between 10% and 90% (non-condensing).

During long storage periods, the ambient temperature should be between-30 °c to 70 °c, with a moisture content (non-condensing) between 5% and 95%.

If the unit is delivered with a battery, it is necessary to remove it and store it with temperature conditions between-10 °C and + 30 °C. For storage periods without use beyond 3 months, batteries may require a recharge cycle. Please refer to your contact person at Famoco for further information.

CLEANING PLASTIC SURFACES

To remove dust, use lint-proof cloth.

For surface soiling, use a sponge and soapy water to clean the area to be treated, then rinse with clear water with a microfiber cloth.

To remove greasy or incrusted stains from the plastic, gently rub the tasks with isopropyl alcohol using a microfiber cloth. Do not use abrasive cleansers.

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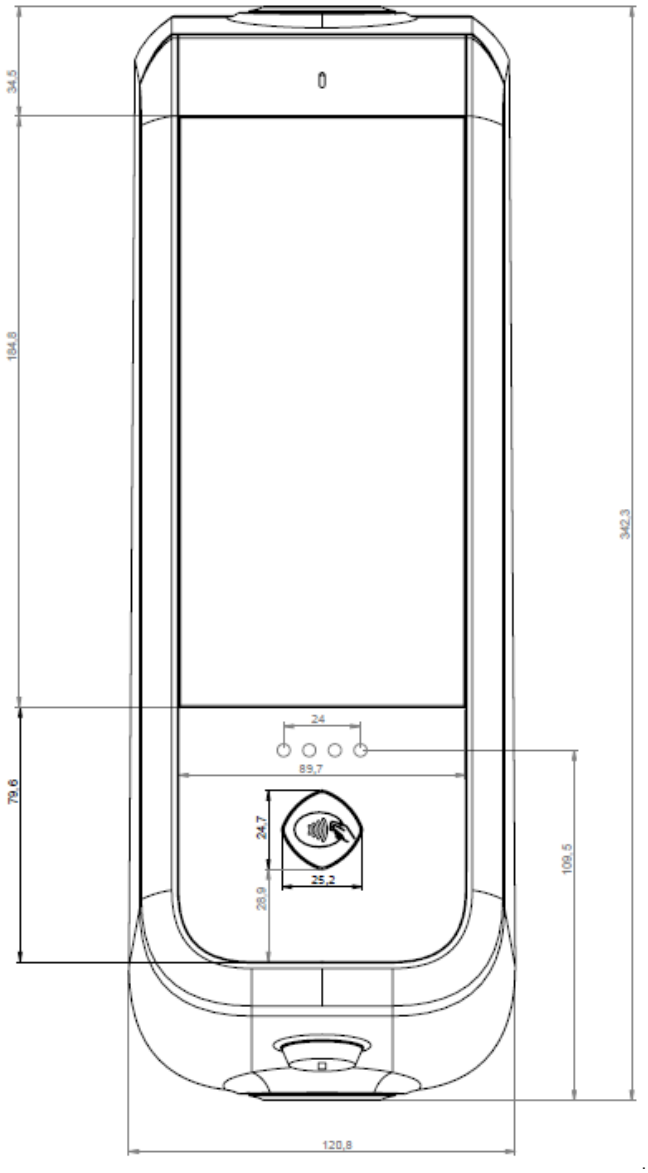
I ANNEXES

ANNEX 1 PRODUCT DIMENSIONS

Front view



* Dimensions in millimeters

Please comply with the following instructions for item customization:

- Do not hide the brand logo
- In no case, a label with metal overlay (paint, surface) can be placed on the NFC reading surface.

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ANNEX 2FCC STATEMENT

FCC Statement:

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.

FCC Statement:

"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 instructions, 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 the 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 a circuit different from that to which the receiver is connected.

—Consult the dealer or an experienced radio/TV technician for help."

The antenna(s) used for this transmitter must be installed to provide a separationdistance of at least 20 cm from all persons.

This device complies with Industry Canada licence-exempt RSS standard(s).

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 equipment complies with Industry Canada radiation exposure limits set forth for an uncontrolled environment.

Cet équipement est conforme à l'exposition aux rayonnements Industry Canada limites établies pour un environnement non contrôlé.

L'antenne(s) utilisée pour ce transmetteur doit être installé pour fournir une distance de séparation d'au moins 20 cm de toute personne.

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