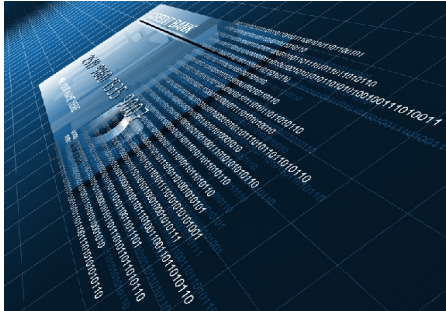


## The challenges of securing electronic payments at automated fuel dispensers

### Transactions at risk

Gas dispenser manufacturers must face multiple challenges linked to the specificities of gas distribution industry. Outdoor devices must be compliant with a number of norms in terms of fuel storage, metrology, security, payment...



**Automated and outdoor gas stations are more vulnerable than other payment terminals to skimming and fraudulent attacks.** Gas station owners have to protect their customers from skimming. In this context, the adoption of EMV technology worldwide has impacted electronic payment equipments, and is now recognized as the most secure solution for card payment transactions. Gas station owners must upgrade their unattended pumps with chipcard readers, given that an **EMV transaction provides a higher level of data protection** than magstripe.

The chip & PIN transaction at self-service fuel dispenser must respect a specific process, due to the characteristics of fuel purchase.

Indeed, the cardholder must enter his PIN number and validate the purchase before actually buying fuel and before being informed of the exact amount of the transaction.

### Industry-specific Best Practices

**EMVCo™**, the organization whose purpose is to manage the interoperability standards for Chip & PIN technology worldwide, has released a « Best Practices » document providing recommendations for industry-specific payment terminals.

It includes advice regarding authorization process during an EMV transaction at self-service fuel dispensers. The terminal should be able to perform online authentication, using either Status Check or Pre-Authorization functionalities.

Both functions are used to **authenticate the chipcard** presented to perform the transaction. Pre-authorization guarantees that the gas station owner will be paid for the final amount, since an estimated transaction amount is «blocked» on cardholder's account during the gas distribution. The Status Check command used to authenticate the card is set with a single unit of currency (1€ or 1\$ for instance).

When the final amount is known, after fuel dispense is completed, the Sales Completion is made using clearing record or completion advice message.

The challenge for automated fuel dispenser manufacturers when upgrading their terminal fleet with EMV card readers is to comply with the latest requirements in a seamless and cost effective manner, while adapting to the industry trends and constraints.

Alcinéo and ALX Technologies have collaborated on a project to develop an **integrated payment terminal** for smartcard acceptance at automated gas dispensers.

### ALX Technologies – Fuel management & dispenser design

ALX Technologies is a French reference with an international network, recognized as *specialist in fuel management and dispenser design and manufacturing*. The company offers a complete range of competitive, easy-to-use equipment for private fleets and retail gas stations.



It has acquired a strong know-how over the years on gas dispense infrastructure and constraints. Nevertheless, in order to **develop fully integrated payment terminal, compliant with the current standards of the market (touch screen, security requirements, cardholder data protection)** it has chosen to collaborate with Alcinéo.

### **Alcinéo – embedded payment software & security**

Alcinéo is specialized in the development of *embedded EMV payment software*, compliant with the standards established by EMVCo and the International payment schemes to *secure transactions at Point of Sales and other payment devices*.

Alcinéo's secure solution also comprise with a PCI PTS logical software and a Terminal Management System solution.

In addition to the development of contact and contactless software suite, Alcinéo provides its customers with closed-loop payment software, such as Total or Shell specifications for gas stations.

Alcinéo's objective was to deliver a bespoke embedded solution fully integrated to ALX product and bring a customized support during the integration of the CB payment application in a seamless manner.

### **EMV Approval challenges**

The first challenge was to build a secure **payment terminal compliant with EMV contact specifications**, according the **specificities of fuel purchase** and **PCI requirements**.

The second issue was to develop the payment application compliant with CB requirements (on the French market) without compromising the configuration of the EMV kernel embedded into the terminal.

Along with the development of the EMV contact level 2 kernel, Alcinéo helped ALX to fill in the related ICS (Implementation Conformance Statement). This document is mandatory to pass certification and must be correctly filled with the terminal configuration and environment. If inconsistencies are found during EMVCo's review of the ICS, the device provider has to correct it before being able to start the testing campaign at a laboratory, which can be time and money consuming.

### **Integration of payment application**

Once the device was certified, and EMV level 2 LoA granted, Alcinéo's support team helped ALX developers to integrate the CB payment application and successfully achieve CB certification. It is mandatory in France to obtain the national payment scheme's approval, to be allowed to deploy electronic payment terminals on the french market.

CB requirements are particularly constraining regarding the application selection rules. Using Wlink, the communication protocol developed by Alcinéo, ALX engineers could easily manage the exchanges between their application and the embedded kernel.

In addition to the development of the kernel and the integration support, Alcinéo is committed to bring logical maintenance, to ensure that the card readers deployed on the field have a correct behavior.

Through bespoke support services, Alcinéo provides its customers with functional and constantly up-to-date solutions.

The expansion of contactless cards issued globally, EMV liability shift for gas pumps in the United States, and mobile payment habits will lead to further evolutions of the gas distribution systems worldwide in the coming years...

The next challenge for unattended gas pump providers is to offer enhanced payment experience to the cardholder, while leveraging sensitive data security.

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