VISIOTECH

SMART POWER SUPPLY

SMART BOXES FOR SOLAR GARDENS



The **SF-BOX08220-BMS-IP55** distribution boxes are specifically designed to take advantage of the power supply provided by public lighting points, which are only supplied at night. This allows us to guarantee an uninterrupted 24-hour power supply. During night time, the mains supplies power and recharges the lithium battery, which will maintain the power supply during the day or for several days thanks to the compatibility with a large 48V, 100A lithium battery. The system also includes a smart board that allows remote monitoring and management (if internet connection is available). Thanks to this technology, users can access the information and data of the installation in real time from any device with web access. Additionally, users can configure and control connected devices, perform diagnostics, receive alerts and notifications, and manage energy consumption remotely, thus obtaining complete control of the system regardless of their location.

Main advantages:

• **Advanced Data Security:** Incorporates protection through data encryption, user authentication and defence against unauthorised access, ensuring the privacy and integrity of stored and transmitted information.

• **OTA (Over-The-Air) updates:** Allows firmware and software to be updated remotely via wireless connections, keeping the system always up to date with the latest enhancements and features, without the need for manual intervention.

• **High Security:** Equipped with advanced protection against overloads, short circuits and unauthorised access, ensuring the security and stability of the devices.

• **Customisable Alerts and Notifications:** Configurable to send customisable alerts and notifications through channels such as email or SMS, alerting about important events, system failures or critical situations that need immediate attention. In addition, it is compatible with existing alarm systems.

• **Intuitive and user-friendly interface:** Its user interface is designed to be easy to use, making it easy to manage even for non-technical people.

• **Centralised Management:** Provides a centralised platform for the management and monitoring of multiple devices, facilitating the remote management, configuration and monitoring of cameras, recorders and routers from a single point of control.

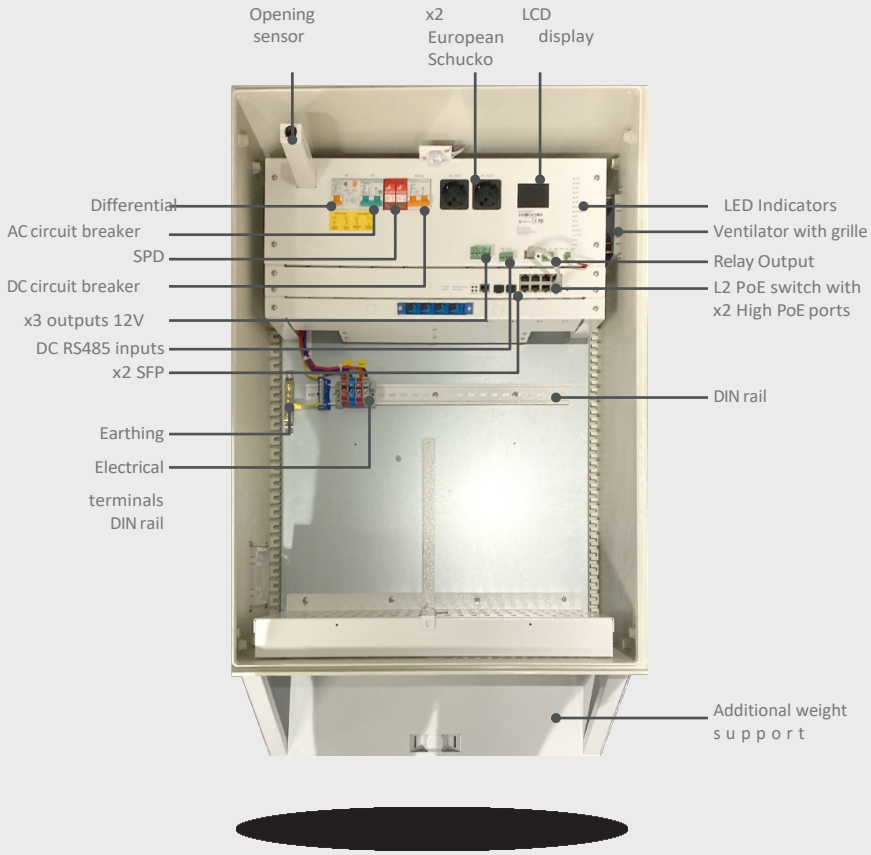
• **Integration Versatility:** Thanks to their manageable outputs, these street light models adapt to different devices, such as IP cameras, recorders and routers, simplifying the integration of video surveillance systems and networks into a single solution.

• **Multi-User Access and Role Management:** Allows the configuration of multiple users with different roles and access levels, ensuring a secure and personalised administration of the system according to assigned responsibilities and permissions.

• **Resilience and Reliability:** Designed to withstand adverse conditions, such as voltage fluctuations, power surges and extreme weather conditions, ensuring continuous and reliable operation of connected devices.

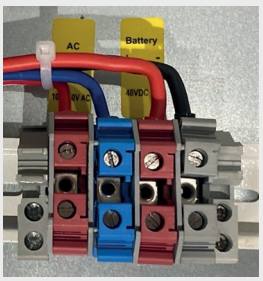
• **Predictive Maintenance:** Provides real-time data on the status and performance of devices, enabling predictive maintenance that facilitates the identification of problems before they affect the system.

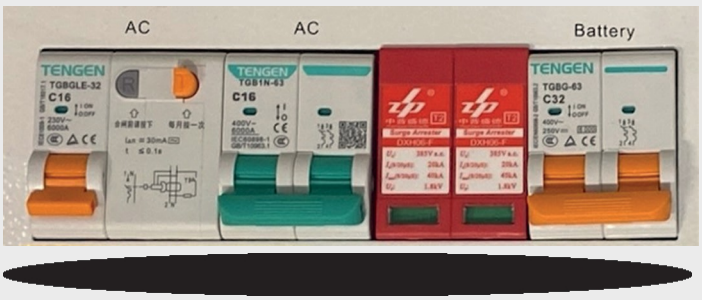
• **Scalability:** Designed to be scalable, this system allows you to add or modify devices and configurations according to changing system needs or future expansions.



Functionalities

220V AC input Connection to the mains power supply of the street light. It has a wide input voltage range and can therefore absorb voltage dips and surges.

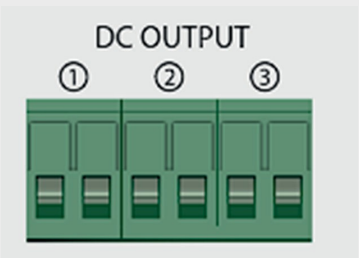




The differential, 220V circuit breaker, SPD and MCB are electrical protection devices designed to interrupt the flow of current in the event of overloads or short circuits in the electrical system. In addition, they have a thermal relay that constantly monitors the temperature of the system, disconnecting the power supply if excessive heating is detected.

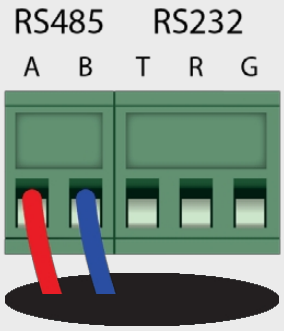
The system includes a direct connection to a battery, which acts as a backup power source. This connection allows the system to operate continuously throughout the day, using stored energy, and ensures a smooth transition in the event of mains power interruptions. The type of battery used for this cabinet is Lithium 48 Volt 100 Amps.



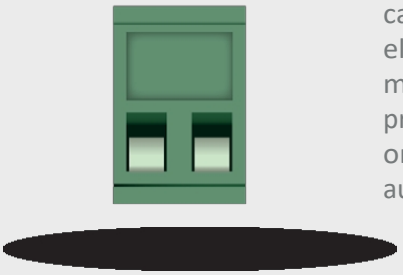


All enclosures are equipped with three 12 volt, 3 amp direct current (DC) outputs each, specifically designed to power devices and equipment requiring this power supply. This configuration allows several devices to be powered independently, facilitating equipment management: in the event of a fault, it is possible to cut or reset the voltage of a specific circuit without affecting the others, allowing selective and efficient management of each device.

The enclosures are equipped with RS485 and RS232 inputs, two widely used serial communication standards for data transmission between electronic devices. These connections allow instructions to be sent remotely to connected industrial equipment, facilitating efficient and reliable communication between devices in the system.

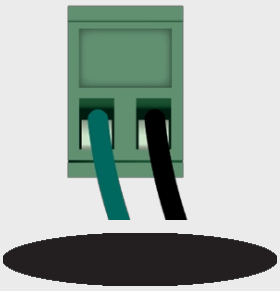


DATA OUT



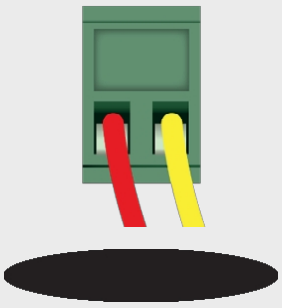
All models include a relay output that functions as an electromechanical switch to control external devices that require activation or deactivation. This output can be activated remotely and manually, allowing additional devices such as electric locks, lights, alarms and access controls to be connected and managed. It can also be configured to activate automatically in response to programmed events, such as the opening of a door, the activation of an alarm or according to a set schedule, extending the system's functionality and automation options.

DOOR



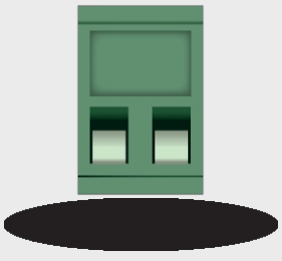
The **SF-BOX08220-BMS-IP55** model is equipped with a door sensor that reports the opening of the door. This allows the control panel to verify that the technical intervention is legitimate and that sabotage is not taking place. In addition, the sensor automatically activates the auxiliary light, improving visibility and security in the area.

SPD

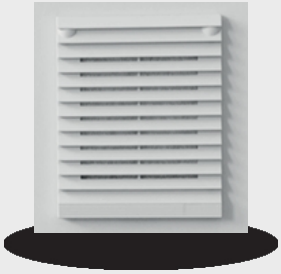


The system includes an internal Surge Protection Device (SPD), designed to protect both the system and the operators from potential electrical discharges. This device acts as a barrier against static discharges, ensuring the safety and integrity of the electronic components.

WATER SENSOR



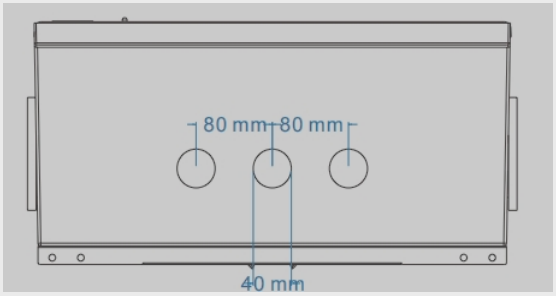
The system allows the optional connection of a flood sensor, which detects the presence of water inside the cabinet where there should be none. Upon detection of water, the sensor sends an emergency alert to the control panel, allowing devices to be remotely disconnected to prevent further damage or accidents. In addition, it notifies the need for immediate assistance and warns nearby personnel of risks, such as possible electric shocks, ensuring the safety of operators and the environment.



All devices are equipped with an internal fan that is automatically activated when the internal temperature reaches high levels. This fan promotes the circulation of hot air to the outlets, which contributes to the cooling of the system and prevents possible overheating, ensuring safe and efficient operation by exhausting the hot air through the side grille.

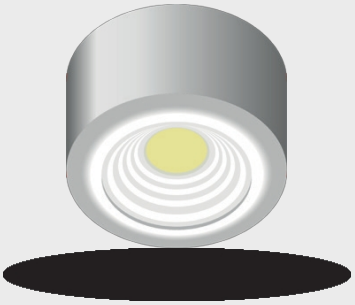
They are equipped with an earthing system, providing a key solution to ensure electrical safety. This feature protects against electric shock and prevents failure or damage to connected equipment and systems. By establishing a safe connection to the ground, it allows the dissipation of currents and the elimination of unwanted voltages. In addition, it complies with electrical safety regulations and standards, helping to prevent accidents and ensuring safe system operation.

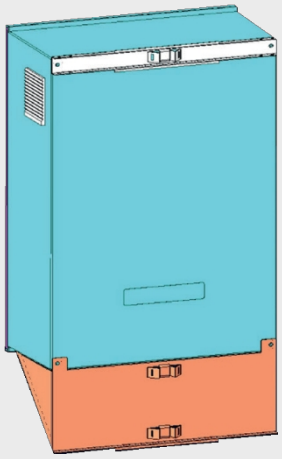




The system is equipped with three cable glands located at the bottom, which provide a secure solution for sealing and protecting electrical, data and communication cables entering or leaving the enclosure. This ensures that the enclosure is protected against the ingress of water, dust, debris, moisture and more. Thanks to the three inputs/outputs, it is possible to isolate different types of signals, preventing interference, electrical noise and other problems that can affect system performance.

All enclosure models include a small internal illumination LED that is automatically switched on when the enclosure door is opened. This feature provides efficient lighting, improving visibility and facilitating access to internal equipment and components, especially when supervision or repair is required. It also aids in carrying out periodic inspections and servicing, ensuring safer and more convenient handling of equipment.



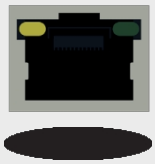


The system includes a specially designed bracket for mounting on a mast, providing a versatile and adaptable solution for the installation and secure fixing of the cabinet or equipment in a variety of locations and environments. In situations where space or the environment requires it, this option allows the equipment to be adapted to a mast, raising it to a suitable height to optimise access and functionality.

The door is designed to prevent the ingress of water or moisture, incorporating a double locking system with key for added security. In addition, it has a step at its base that prevents water from accumulating in the rubber seal, preventing it from sticking to the canopy or the door edges due to frost or dirt. Optionally, a high-security lock can be installed to reinforce protection.



NETWORK



The system has a network socket that connects the internal smart module to one of the switch ports. This allows the switch to be connected to the Internet to enable remote access for efficient management and monitoring of the device.



The system incorporates a professional switch with 8 Ethernet (RJ45) and 2 SFP (Small Form-factor Pluggable) ports, offering versatile and robust connectivity for device interconnection. This facilitates integration into local area networks (LAN) or wide area networks (WAN), ensuring efficient and flexible communication between connected devices. The L2 switch has 6 PoE ports and 2 special High PoE ports for connecting high-power devices. It supports the extended PoE function.

What it is for:

• **Resiliency and Redundancy:** Offers resiliency (with watch dog on all ports) and redundancy features, improving network availability and reliability. SFP ports can be used as backbone links, which increases network stability and capacity.

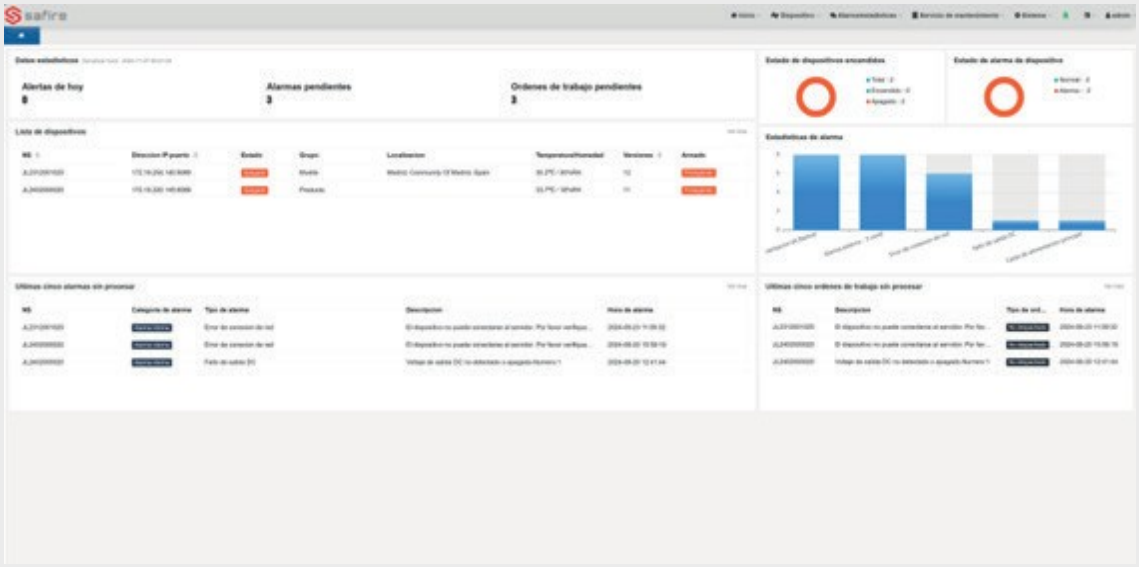
• **High Performance and Speed:** Provides high performance and fast data transfer speeds, facilitating the efficient transmission of information, videos, images and other data between connected devices.

• **Extended Connectivity:** Provides extended and flexible connectivity, allowing the interconnection of various devices, equipment and systems. It facilitates the creation of local area networks (LAN), network segmentation and expansion of the network infrastructure according to the needs of the installation.

• **Integration with Existing Networks:** Facilitates integration with existing networks, allowing connection and communication with other switches, routers, servers, storage devices and network equipment, enabling coordinated and unified operation.

Remote Management Software

The management software is free of charge and is installed in a Windows environment. It is designed to manage and monitor multiple smart enclosures, facilitating centralised logging, configuration and monitoring of the connected enclosures. The web interface is accessible and easy to use, allowing efficient management from anywhere.



Features

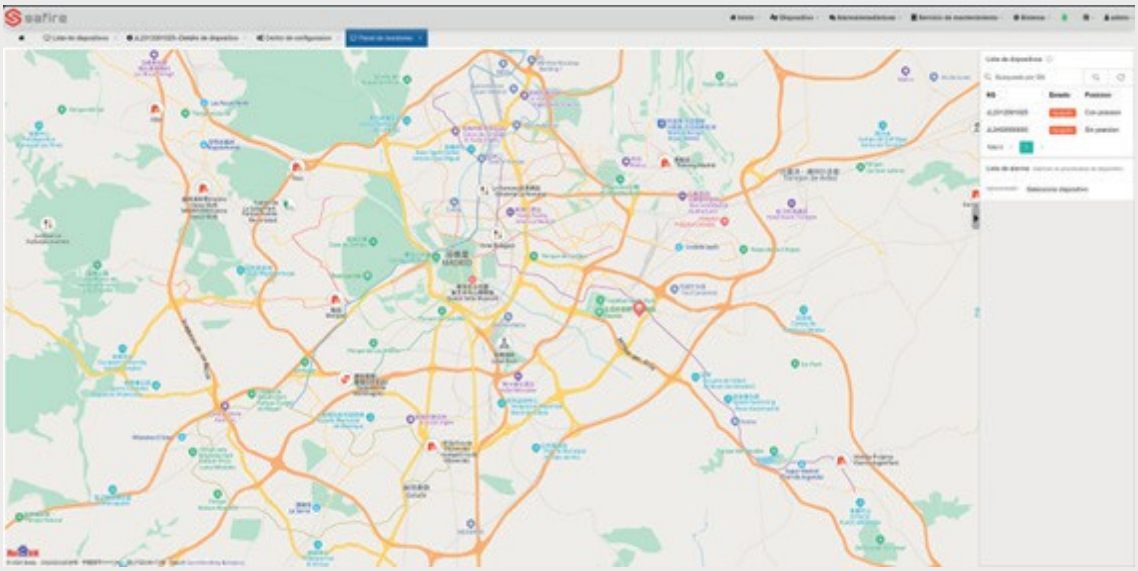
Automatic Connection and Registration of Cabinets

The smart cabinets are designed to automatically connect and register to the web server by pointing to the server address. This facilitates quick integration and simplified implementation of the enclosures into the centralised management system.



GPS Location on Online Map (Manually)

This functionality makes it possible to geolocate the box and enter its coordinates in the control unit, which has a map tool (emap). This facilitates the visualisation of all installed devices on the map, which is particularly useful when managing units distributed over a large territory.



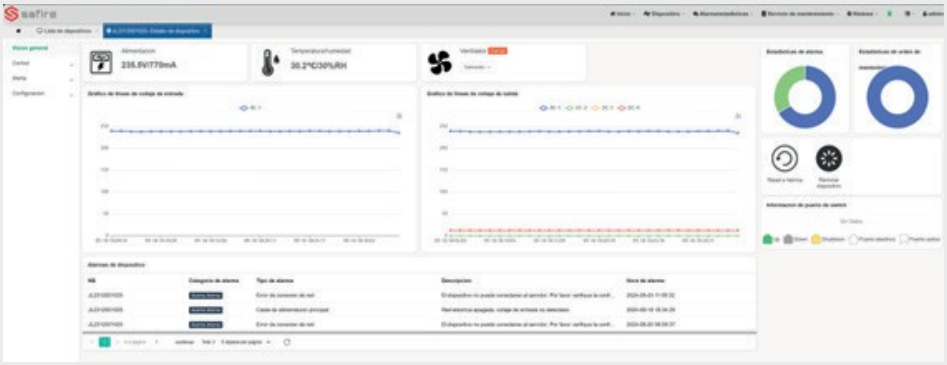
Manual and Automatic Control of 12V and Relay Outputs

The system allows both manual and automatic control of the 12V outputs and the relay output of the smart cabinet. This offers flexible and customised management of connected devices and systems. Users can remotely switch devices on or off in the event of a blockage, or receive notifications via an alarm panel, thanks to the integrated relay output.



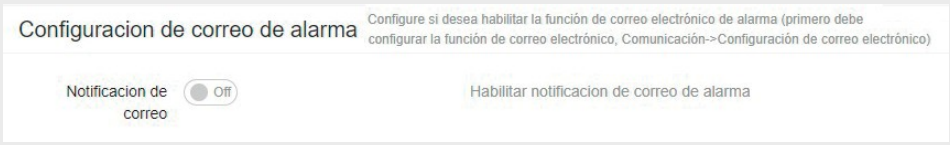
Real-time Display of Enclosure Properties

The management software allows real-time visualisation of all the properties and characteristics of the smart cabinet, facilitating the continuous monitoring and supervision of its status. Information on the operating parameters of the equipment and systems in the cabinet, such as power consumption, voltage outputs, switch ports, door status, internal lighting, ventilation, humidity, among others, can be accessed, allowing for a detailed and efficient analysis.



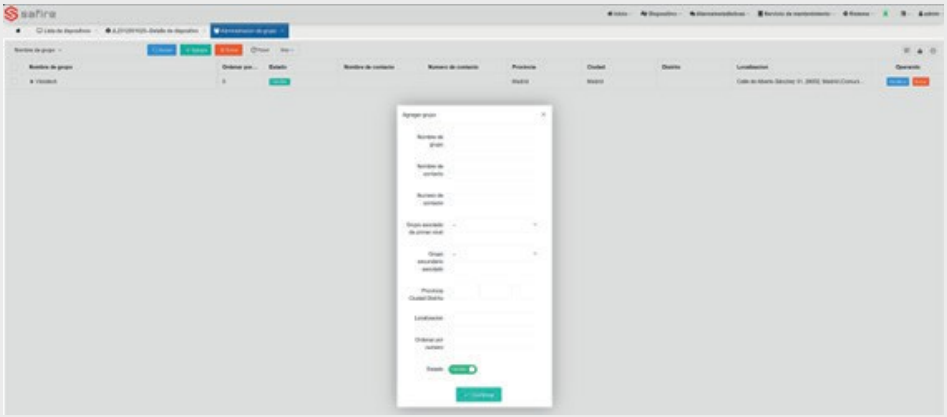
Alarm Notifications via Relay and Email

The system automatically detects events and incidents, such as equipment failures, overloads, short circuits, power failures and other critical occurrences that require immediate attention. Via relay and email, it sends automatic notifications to designated recipients (technicians, administrators), providing detailed alerts, incident reports and status updates. These notifications report events that have occurred, conditions detected and actions required to manage and mitigate the risks and impacts associated with the incidents.



Management of User Groups by Levels and Permissions

The system allows the management of user groups with different levels and permissions, providing an organised, secure and customised structure to control access, roles and operations in the smart cabinet. In addition, it facilitates detailed auditing and access logging, documenting all activities, operations and events performed by users. This ensures traceability, transparency and accountability, enabling effective monitoring, evaluation and analysis of user behaviour in the operational environment.



Statistics and Consumption History Tables and Real-Time Event Viewer

The system provides a table of statistics and consumption history, along with a real-time event viewer, allowing detailed and up-to-date visualisation of data and activities related to the performance and operation of the enclosure. The statistics table presents graphs, charts and metrics for power consumption, battery levels, device operations and other relevant data. In addition, access is provided to stored consumption histories, which record and document measurements and activities related to energy consumption. This data can be exported for processing in other programs.



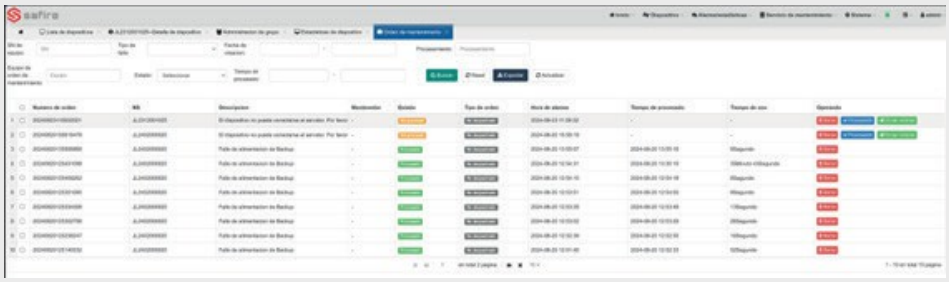
Spanish Platform with Customisable Logo and Home Screen, Menus and Responsive Design

The software is supplied free of charge in English and allows you to customise key aspects such as the home screen, logo and user interface. This customisation capability is especially designed for users who manage multiple units, providing a more satisfying experience tailored to their needs. The design is also adaptive, ensuring a streamlined and easy-to-use interface.



Automatic Generation of Maintenance Orders due to Fault Detection

The system allows the automatic generation of maintenance orders when faults are detected in the smart cabinet. This functionality facilitates a fast and efficient response to incidents, guaranteeing the operational continuity and reliability of the system. Once the maintenance order has been created, a fault report is automatically sent to the technicians responsible so that they can intervene in a timely manner.



Hardware specifications

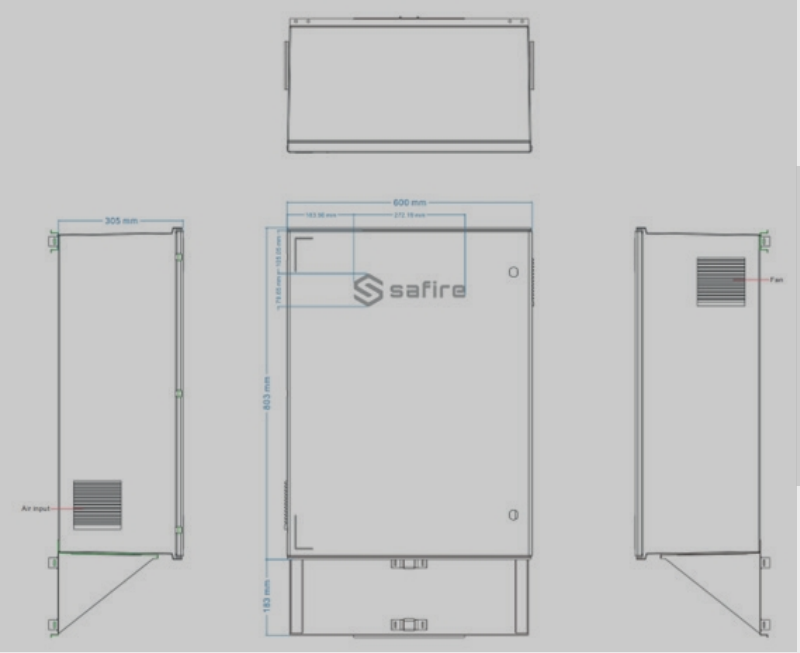


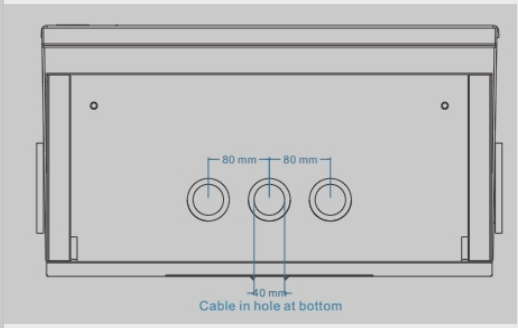
Product specifications

Safire **Brand**
Type Polyester enclosure with switch and power supply included
Security Double key lock
Power input AC input 100-240V, DC 72V, output 320W
Socket x2, European type F
Differential RCD 1P+N, 16A
SPD transients xSPD 2P, AC380V, 20KA
MCB **Circuit Breaker** MCB Circuit Breaker, 1P, DC220V, 16A, Type C+ 1P,DC220V, 16A, Type C
DC output 3x 12V DC, Max. 240W (between the 3 outputs)
Fan 1x 12V DC
DC 12V||Internal LED **light** for night-time maintenance. Lights up when the door is opened
Door sensor Yes
xSwitch 8*10/100/1000M PoE **Ethernet Switch** (2*ports 90W, 6*ports 30W)+ 2*1000 SFP, L2 managed
Alarm input 3 inputs, dry contact|||*Input 1 used as default for door contact
Intelligent network port 1 x 10/100Base-TX **module**
Reset button> Long press for 5 s: restore factory settings
Converter DC 48 V to DC 12 V Converter
Charge controller Max. input voltage 100 V, battery support DC12 V/24 V/48 V, charging current 20 A
LCD display Size: 2.5 inch LCD display **Fiber fusion**
tray 4 x SC (connector) **Operating temperature** -20 ~70
Storage temperature -40 ~85
Humidity 0~90% non-condensing
Outer dimensions 800 (H) x 600 (W) x 300 (D) mm **Material**
SMC (glass-fibre reinforced polyester resin) **Colour** White
Net weight 22Kg
Management software Si
Switch
Consumption Self-consumption<20W, PoE output180W max.
Ports Ports 1-2: 10/100/1000Base-T, 90W, RJ45 PoE (IEEE 802.3bt, also IEEE8025.3af/at compliant);
||Ports 3-8: 10/100/1000Base-T, 30 W, PoE RJ45 (IEEE802.3af/at)
SFP Ports 9~10, SFP 1000Base-X slots
20Gbps **switching capacity Bandwidth**
14.88Mpps
Buffer 1M
8K **MAC address table**

Surge **Protection**: 6 kV, standard: IEC61000-4-5||ESD: 6 kV: contact/8 kV: air, standard: IEC61000-4-2 **System configuration** Date and time|||User administration|||Security administration (http, SNMP, telnet, SSH)|||Configuration files (export/import)||Firmware|||System (reboot, default) **Port configuration** Status|||Port speed||Traffic control|||Storm control (broadcast, interval, unicast), unicast, multicast)||Protection from port protection|||MAC MAC||Trunk ports|||Backbone ports|||Mirror ports trunk|||Mirror ports||DHCP||IGMP snooping|||VLAN||LACP|||LLLDP|||Loopback detection|||MAC VLAN||VLAN mapping|||VLAN voice|||Mvr interface|||OAM||QinQ|||UdId|||Jumbo frame|||DDDDM information
MAC Link MAC link||Auto link|||MAC filter|||Bridge
VLAN Working mode (access, trunk, hybrid)||VLAN by default|||Member tagued
SNMP Configuration SNMP community (community name, read, write)||TRAP (SNMP version V1, V2C, V3)
Standard IP **ACL configuration** (Groups, source IP, wildcard, mathematical data packets)||Extended IP (Groups, source IP, source wildcard, destination IP, destination wildcard, protocol, source port)||IP MAC||MAC ARP|||ACL reference|||Time range
QoS Configuration QoS Application||Agenda QoS|||IP Address||ARP||Host static route
AAA Tacacs+||Radius|||Authentication 802.1X **configuration**
STP MSTP||STP Port **Configuration**
IGMP Snooping Configuration Available
GMRP Configuration GMRP Global GMRP||GMRP Ports|||GMRP Registration
EAPS configuration EAPS
RMON Configuration Statistics||Historical||Alarms|||Events
NDP||NTDP||Cluster Management||NTDP||Cluster
Log information Log||Syslog
POE Power Control Type||Admin Status|||Total Power|||PoE Policy|||PD Query
DHCP DHCP Snooping
ERPS configuration ERPS||ERPS Ring 1~21
LACP active links LACP
Line Vty
LLDP Global||Hold multiplier||Timer
Loop detection Detection time||Protocol|||Response packets|||Response time
MVR Groups||VLAN
OAM Frame with error|||Period||Seconds Forced
redundant port|||Primary port **UDLD**
Enable|||Schedule
VLAN ARP protocol, Atalkaarp, Atalkddp, Atmmulti, Atmtransport, Dec, Deccustom, Decdiagnostics, Decnadumpload, Decdnaremoteconsole, Decnarouting, Declat, Desyscomn, G8bpqx25, IEEEaddrtrans, IEEEpup, IP, IPX, PPPdiscovery, PPPsession, Rarp, X25, Xeroxaddrtrans, Xeroxpup
CFM CC|||Enable||Linktrace||MA|||MD|||Mip-rule|||Service-instance

Dimensions





Applications for use

Infrastructure and Public Facilities

Monitoring and maintenance of infrastructures, public equipment and control systems in municipal facilities, including parks, squares and public spaces. Monitoring and control of components such as fountains, traffic lights, signs and traffic management devices, all connected to the smart cabinet.





Construction and Public Works

It facilitates the management of construction and works in locations where it is not possible to have a constant 24-hour electricity supply, allowing the control and monitoring of the progress of the work and its safety.



Water and Sanitation Infrastructure Management

Supervision and control of water management systems, pumping stations, distribution networks and wastewater treatment and sanitation s y s t e m s . Real-time monitoring of key parameters, storage levels, water quality and maintenance operations.

Residential Environments and Smart Communities
Implementation of smart and connected solutions in homes, schools and residential communities, aimed at improving quality of life, safety and environmental sustainability through the integration of IoT sensors.





Video Surveillance and Security Systems
Integration and connection of IP cameras, recorders and security systems to the smart cabinet. Monitoring and controlling security zones and access points in real time, with automatic alarm and alert generation.

Industrial and Commercial Solutions
Implementation and management of industrial, commercial and enterprise solutions requiring remote monitoring and control of critical facilities and processes. Integration and management of automation, access control, environmental monitoring and asset management systems connected to the smart cabinet.





Transport and Logistics Facilities
Integration and control of signalling, traffic control, lighting and security systems in transport infrastructures such as stations, airports, ports and public transport networks. Remote monitoring and management of logistics facilities, warehouses, terminals and distribution points to optimise operability, efficiency and safety in transport and logistics operations.

Integration and support of irrigation systems, agricultural sensors, weather stations and precision farming solutions connected to the smart cabinet. Remote monitoring and management of crops, environmental conditions, natural resources and farming operations. Operations to optimise the production, productivity and sustainability in agriculture and agribusiness. Monitoring of livestock and locating stray animals.

