INSTALLATION AND OPERATION MANUAL

Site Monitor

SM9S

Table of Contents

1. Safety Precautions

Before installing and powering on the product, carefully read the instructions contained in this installation and operation manual.

 Caution Symbol.

 Danger Symbol and Risk of Electric Shock.

 **Warning**

Installation should only be performed by qualified personnel. High voltage and energy risks are present and can cause death or injury if the precautions in this manual are ignored.

 **Attention**

Carefully follow the instructions contained in this manual. If you have any questions, please contact qualified technical support.

 **Attention**

Use the product only in an indoor environment.

2. Overview

2.1. Introduction

Site Monitor is a monitoring and security module designed to provide precise information via a web server and SNMP-V2 protocol. Its versatility is one of its key features, allowing seamless integration with a variety of leading management software, such as Zabbix, Grafana, LibreNMS, The Dude, among other systems.

With an intuitive web interface, the Site Monitor enables quick configuration and access to crucial information, including measurements of AC and DC voltage, as well as temperature and humidity data, making environmental monitoring a swift and easy task to execute. Its broad applicability is an advantage, covering critical environments such as POPs, data centers, racks, and telecom towers, as well as other locations requiring real-time monitoring.

The product offers an additional functionality for equipment control through a relay output. This output allows for both manual and automatic activation of connected devices. The "Scheduling" configuration is one of the main highlights of this function, enabling users to program the start and end times, as well as the days of the week when the relay will toggle its state. This configuration facilitates event scheduling and precise control of connected devices.

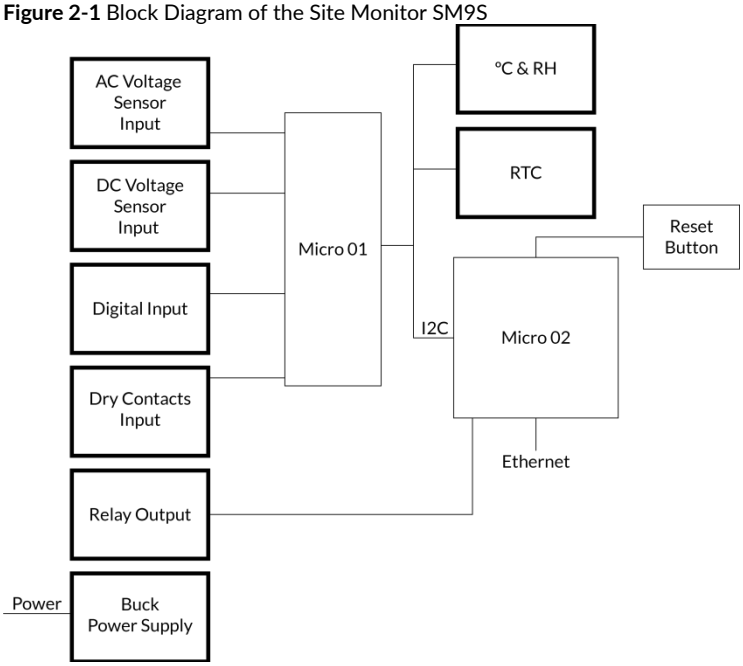
Furthermore, the Site Monitor SM9S includes three dry contact inputs and one digital input, providing flexibility for the device to be used in various ways, such as a smoke sensor, door sensor, magnetic sensor, presence sensor, battery sensor, among other possibilities (sensors not included with the device). This allows for effective customization, adjusting monitoring according to the specific needs of each installation.

2.2. General Features

Input Characteristics		SM9S
Connections	Power Supply	Terminal block connector for wires up to 1.5 mm²
	Sensors 1, 2, 3 e 4	8-pin terminal block connector
	Ethernet Port	RJ45 PoE 802.3af (10/100 Mbps)
Voltages	Power Supply	10 - 60 V_{DC}
	Sensor 4 (Digital)	5 - 60 V_{DC} (Lógic high)
		<5 V_{DC} (Lógic low)
Output Characteristics		**SM9S**
Connections	AC Sensor	Terminal block connector for wires up to 1.5 mm²
	Relay	Terminal block connector for wires up to 1.5 mm²
Voltages	AC Sensor	60 - 270 V_{AC}
	Relay	0 - 250 V_{AC}
Current	Relay	Up to 5 A
General Specifications		**SM9S**
Dimensions / Weight		34 x 110 x 113 mm / 0,297 kg
MTBF		>120.000 hours (estimated)
Operating Temperature		-10 to 60° C
Humidity		10 to 90% UR (non-condensing)
SNMP-V2 Protocol		Yes
Local Web Servers		Yes
Ethernet Port		1
AC Detection Input		1
INTEGRATED Temperature Sensor		1
INTEGRATED Humidity Sensor		1
Dry Contact Sensor Input		3
Digital Sensor Input		1
Programmable Relay Output		1
Device On Indicator (Green LED)		Device powered on
Relay Activation Indicator (Green LED)		Relay activated

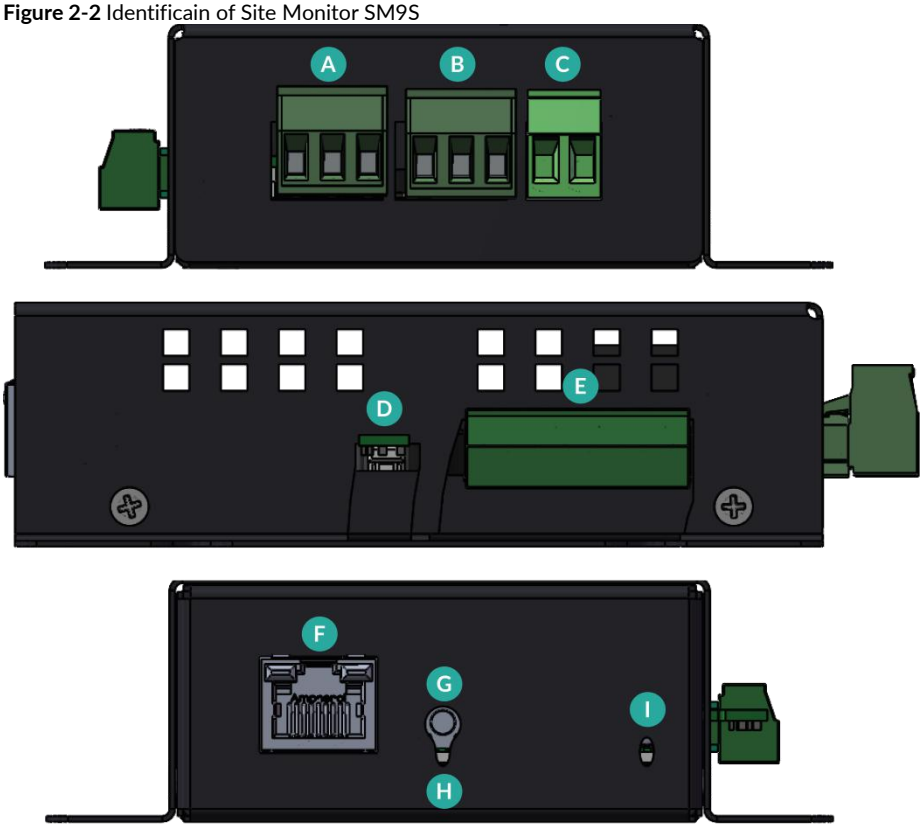
2.3. Block Diagram

Figure 2-1 Block Diagram of the Site Monitor SM9S



2.4. Identification

Figure 2-2 Identificain of Site Monitor SM9S



- **A -** AC power sensor input connection.
- **B -** Relay output connection.
- **C -** DC power input connection.
- **D -** Integrated temperature and humidity sensor.
- **E -** Inputs for dry contacts and digital sensor.
- **F -** Ethernet port for network connection (ETH).
- **G -** Button for resetting network configuration.
- **H -** LED indicator for device operation.
- **I -** LED indicator for relay operation.

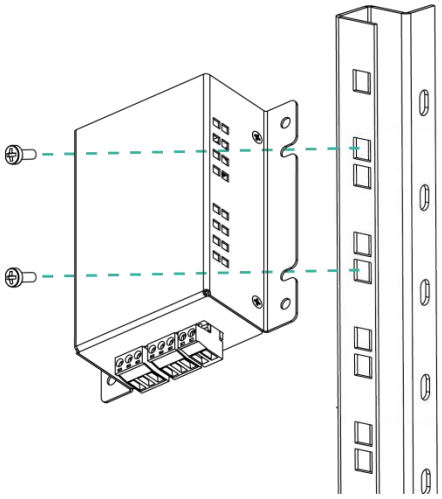
3. Installation Instructions

3.1. Mechanical Installation

3.1.1. Rack Mounting

To secure the Site Monitor to the rack, place the screws in the mounting tabs and tighten them to the rail, as illustrated in the image below.

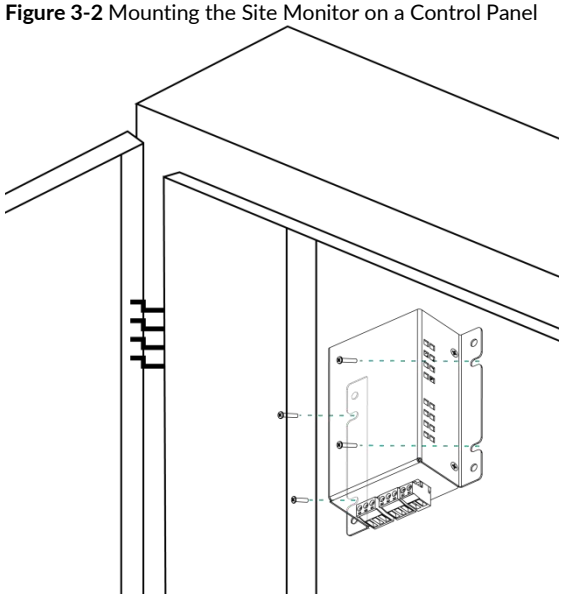
Figure 3-1 Mounting the Site Monitor on the Rack



3.1.2. Mouting on Control Panel

To mount the Site Monitor on a control panel, use 4 screws and secure it in place as illustrated below.

Figure 3-2 Mounting the Site Monitor on a Control Panel



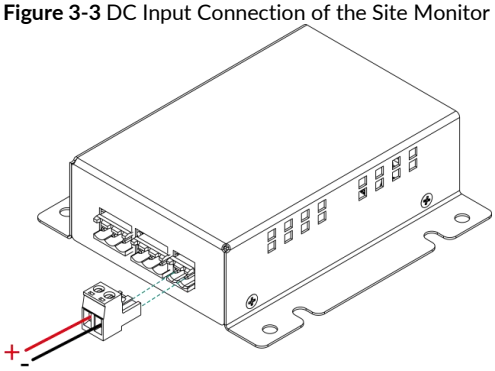
It can be installed at 0° or 90°.

3.2. Electrical Installation

3.2.1. Power Connection and DC Input

Connect the DC power connector to its correct polarities in the plug as indicated in the figure below.

Figure 3-3 DC Input Connection of the Site Monitor SM9S

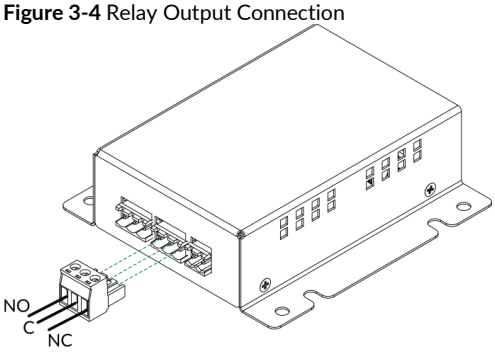


Attention

The SM9S Site Monitor is powered and reads the DC Input voltage.

3.2.2. Relay Output Connection

Figure 3-4 Relay Output Connection



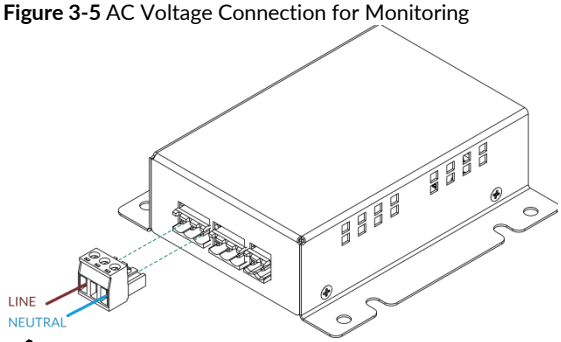
NO - Normally Open

C - Comum

NC - Normally Close

3.2.3. AC Voltage Sensor Connection

Figure 3-5 AC Voltage Connection for Monitoring



Attention

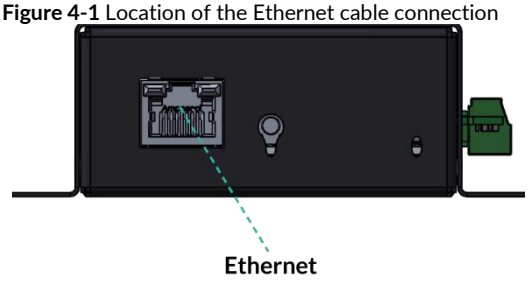
The SM9S Site Monitor has an isolated transformer that reads the AC voltage; however, it is NOT powered by this voltage.

4. Remote Management and SNMP

4.1. Installation

To integrate the SM9S Site Monitor into SNMP monitoring on the network, it is necessary to connect an Ethernet cable.

Figure 4-1 Location of the Ethernet cable connection



Default IP: 192.168.1.50.

Username: admin

Password: admin

If you need to return to the initial configuration of IP and password, press and hold the Reset button for 10 seconds. Pressing the Reset button will not affect the relay output of the Site Monitor.

4.2. Access Configuration on the Computer

1) Click on: Start > Control Panel > Network and Sharing Center.

2) Click on: Change adapter settings > Local Area Connection > Properties.

3) Select Internet Protocol Version 4 (TCP/IPv4) > Properties. Configure your local network with the parameters. Example: IP: 192.168.1.10 and subnet mask: 255.255.255.0, Gateway IP address: 192.168.1.1.

4) Confirm the current settings by clicking the OK button on both configuration screens.

5) Open your internet browser and select Tools > Internet Options > Connections > LAN Settings.

6) Check the option to Automatically detect settings. The other options should be disabled. Confirm the configuration by clicking the OK button.

7) In the browser, enter the default factory IP address 192.168.1.50 to open the Site Monitor configuration homepage.

4.3. Description of the Web Page Screens

4.3.1. Status Screen

Table 4-1 Status Screen

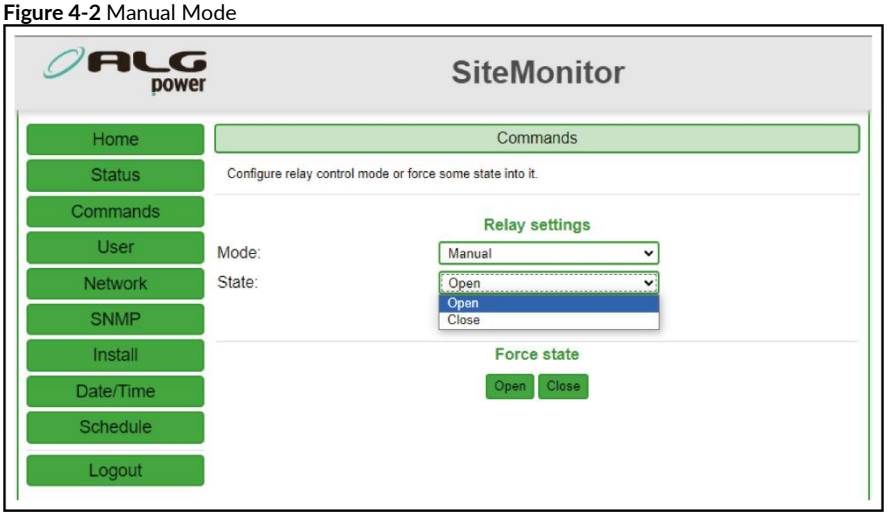
Site Monitor Status	
Name	**Description**
Date/Time	Displays the date and time set in the "Date/Time" tab.
Sensors	
Name	**Description**
Temperature 1	Displays the measured temperature from the integrated sensor.
Relative humidity 1	Displays the relative humidity measured by the integrated sensor.
AC voltage 1	Displays the measured AC voltage.
DC voltage 1	Displays the measured DC voltage.
Dry contact 1	Displays the current state of the dry contact input 1.
Dry contact 2	Displays the current state of the dry contact input 2.
Dry contact 3	Displays the current state of the dry contact input 3.
Digital sensor input 1	Displays the state of digital sensor input 1.
Relay output 1	Displays the state of the relay output, indicating whether it is currently open or closed and the activation mode: manual, automatic, or scheduled.

4.3.2. Commands Screen

The Commands screen provides the ability to configure the control mode of the relay output and force a specific state. This feature allows for the configuration of up to 3 distinct modes:

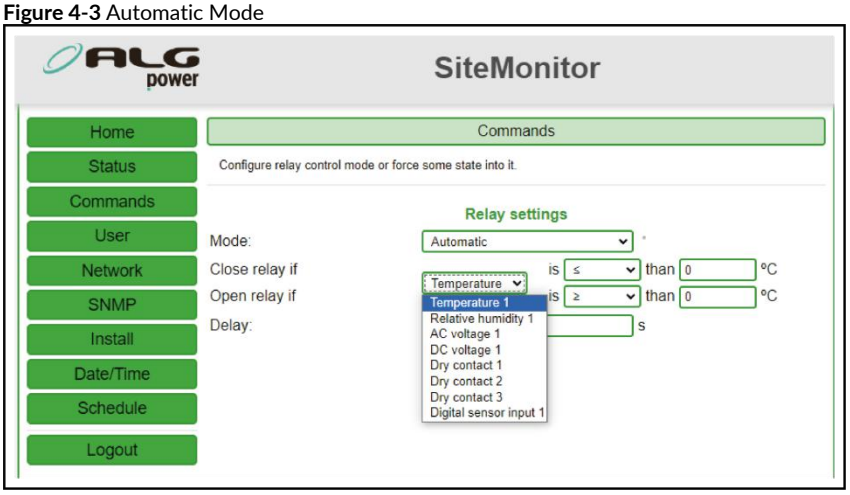
➢ **Manual Mode:** In manual mode, you can manually choose whether the relay output should remain open or closed.

Figure 4-2 Manual Mode



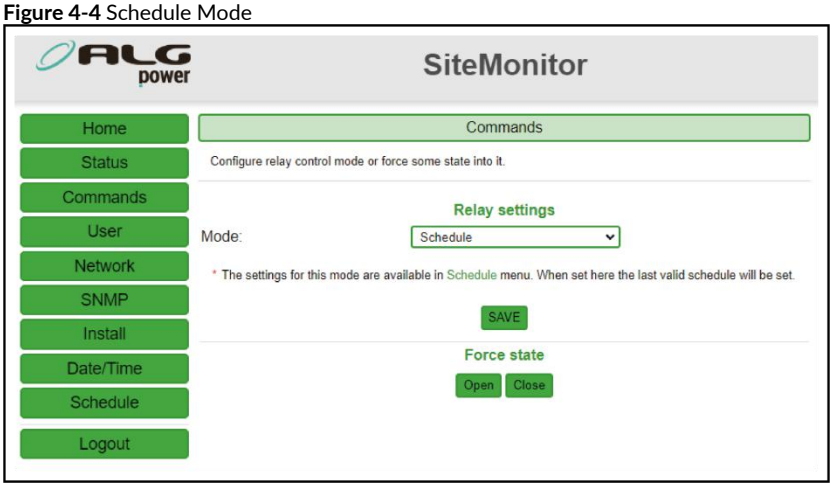
➢ **Automatic Mode:** In automatic mode, you can set maximum and minimum values for temperature, humidity, AC voltage, DC voltage, and also the state of the dry contact input or digital input that will control the opening or closing of the relay output. This configuration allows the system to operate autonomously, making decisions based on the conditions you have established, ensuring that the relay is triggered automatically when the defined parameters are reached.

Figure 4-3 Automatic Mode



➢ **Scheduled Mode:** The settings for this mode are available in the "Schedule" tab, see item 4.3.8 Schedule Screen. When defined here, the last valid schedule will be applied.

Figure 4-4 Schedule Mode



4.3.3. User Configuration Screen

Allows you to configure user credentials, replacing the current ones. They can be reset to factory defaults using the device's reset button.

4.3.4. Network Configuration Screen

Allows you to change and set new configuration values for the device and the IP. They can be reset to factory defaults using the device's reset button.

Attention

Incorrect settings may render the device inaccessible.

4.3.5. SNMP Screen

Allows configuring read/write community identifiers for the SNMPv2c agent.

Configure up to 3 community names if you want the SNMP agent to respond to the NMS/SNMP manager with different read community names. If fewer than three communities are sufficient, leave the remaining fields blank.

4.3.6. Install Screen

Tab for configuring general information about the equipment, responsibility, and regional information. It also allows you to change the date format, temperature units, and label the sensors of the Site Monitor.

4.3.7. Date/Time Configuration Screen

Allows you to adjust the date and time of the Site Monitor to ensure that time-based schedules work correctly, ensuring that scheduled operations occur at the desired moment.

Table 4-2 Date/Time Configuration Screen

Name	Description
Time zone	Allows you to configure the time zone of the Site Monitor to ensure that the displayed time is correct relative to your geographical location. The copy command fills the time zone field based on your computer's time zone settings.
SNTP	This is a function that, when enabled, allows the Site Monitor's clock to synchronize with a time server on the network.
Site Monitor Time	The synchronization command synchronizes the Site Monitor's time with the clock of the host (computer or server) to which it is connected. This feature is available only when SNTP is disabled. When you synchronize the Site Monitor's time with the host, it updates its clock based on the host's clock, ensuring time accuracy.

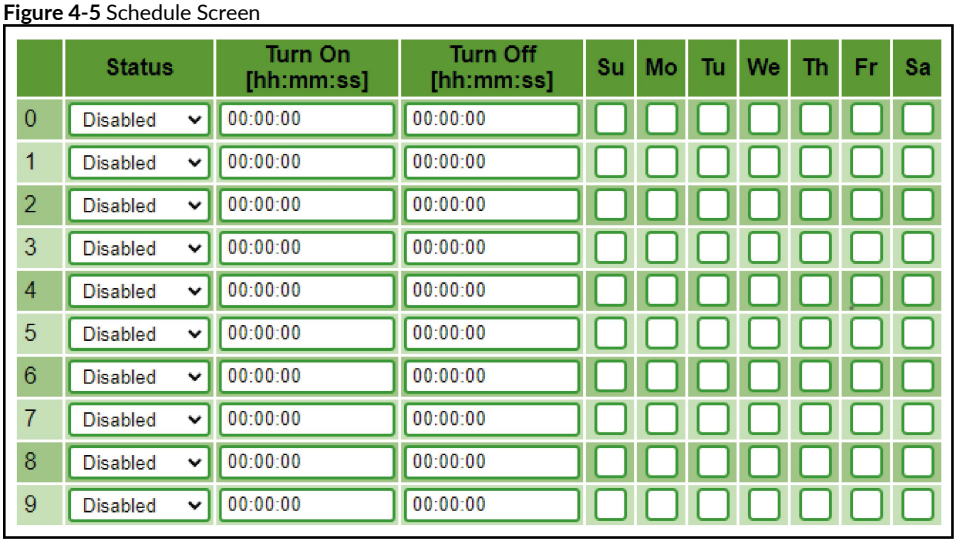
4.3.8. Schedule Configuration Screen

Allows you to configure up to 10 distinct schedules. It is possible to enable each time interval individually within a specific schedule, and each interval covers a 24-hour period. This flexibility allows for overlapping days and combining multiple intervals when necessary to schedule events that extend beyond 24 hours.

Attention

When saving the schedule, the relay mode will change to "Schedule" mode, as seen in item 4.3.2 Commands Screen. Other settings for the relay mode will be lost.

Figure 4-5 Schedule Screen



	Status	Turn On [hh:mm:ss]	Turn Off [hh:mm:ss]	Su	Mo	Tu	We	Th	Fr	Sa
0	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
1	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
2	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
3	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
4	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
5	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
6	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
7	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
8	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐
9	Disabled	00:00:00	00:00:00	☐	☐	☐	☐	☐	☐	☐

Status: Field to select the activation or deactivation of the schedule.
Turn On: Field to set the time (in hh:mm format) to close the Site Monitor's relay output.
Turn Off: Field to set the time (in hh:mm format) to open the Site Monitor's relay output.
Su / Mo / Tu / We / Th / Fr / Sa: Fields to mark the day(s) of the week when the schedule will be active.

4.4. Interface OIDs

The MIB file is available for download on the Site Monitor webpage under the "Home Page" tab.

Installation Parameters
Equipment installation information.

Table 4-4-0 Installation Parameters

OID	Description	Type	Parameters	Access
.1.3.6.1.2.1.1.1.0	Equipment Name	String	Text	Read-Only
.1.3.6.1.2.1.1.2.0	Default IP	OID	1.3.6.1.4.1.49136.200	Read-Only
.1.3.6.1.2.1.1.3.0	Equipment Installation Date	TimeTicks	DD/MM/YYYY (Standard format)	Read-Write
.1.3.6.1.2.1.1.4.0	Responsible Person	String	Text	Read-Write
.1.3.6.1.2.1.1.5.0	PoP Name	String	Text	Read-Write
.1.3.6.1.2.1.1.6.0	Installation Address	String	Text	Read-Write
.1.3.6.1.2.1.1.7.0	Services	Integer	0	Read-Only

Subgroup 1 – Fixed Description Parameters
Fixed name of the sensor.

Table 4-4-1 Fixed Description Parameters

OID	Description	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.1.1.0	Temperature	String	Temperature 1	Read-only
.1.3.6.1.4.1.49136.100.1.4.0	Humidty	String	Relative Humidity 1	
.1.3.6.1.4.1.49136.100.1.5.0	AC Voltage	String	AC voltage 1	
.1.3.6.1.4.1.49136.100.1.6.0	DC Voltage	String	DC voltage 1	
.1.3.6.1.4.1.49136.100.1.10.0	Dry Contact Input 1	String	Dry contact input 1	
.1.3.6.1.4.1.49136.100.1.11.0	Dry Contact Input 2	String	Dry contact input 2	
.1.3.6.1.4.1.49136.100.1.12.0	Dry Contact Input 3	String	Dry contact input 3	
.1.3.6.1.4.1.49136.100.1.26.0	Digital Sensor Input 1	String	Digital sensor input 1	
.1.3.6.1.4.1.49136.100.1.31.0	Relay Output 1	String	Relay output 1	

Subgroup 2 – Editable Description Parameters
User-defined name.

Table 4-4-2 Editable Description Parameters

OID	Description	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.2.1.0	Temperature	String	Temperature 1	Read-Write
.1.3.6.1.4.1.49136.100.2.4.0	Humidty	String	Relative Humidity 1	
.1.3.6.1.4.1.49136.100.2.5.0	AC Voltage	String	AC voltage 1	
.1.3.6.1.4.1.49136.100.2.6.0	DC Voltage	String	DC voltage 1	
.1.3.6.1.4.1.49136.100.2.10.0	Dry Contact Input 1	String	Dry contact input 1	
.1.3.6.1.4.1.49136.100.2.11.0	Dry Contact Input 2	String	Dry contact input 2	
.1.3.6.1.4.1.49136.100.2.12.0	Dry Contact Input 3	String	Dry contact input 3	
.1.3.6.1.4.1.49136.100.1.26.0	Digital Sensor Input 1	String	Digital sensor input 1	
.1.3.6.1.4.1.49136.100.2.31.0	Relay Output 1	String	Relay output 1	

Subgroup 3 – Value Parameters
Displays the variable value.

Table 4-4-3 Value parameters

OID	Description	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.3.1.0	Temperature	Integer	°F or °C	Read-Only
.1.3.6.1.4.1.49136.100.3.4.0	Humidty	Integer	%	
.1.3.6.1.4.1.49136.100.3.5.0	AC Voltage	Integer	V/1000 (Volts)	
.1.3.6.1.4.1.49136.100.3.6.0	DC Voltage	Integer	V/1000 (Volts)	
.1.3.6.1.4.1.49136.100.3.10.0	Dry Contact Input 1	Integer	0 -no, 1-yes	
.1.3.6.1.4.1.49136.100.3.11.0	Dry Contact Input 2	Integer	0 -no, 1-yes	
.1.3.6.1.4.1.49136.100.3.12.0	Dry Contact Input 3	Integer	0 -no, 1-yes	
.1.3.6.1.4.1.49136.100.3.26.0	Digital Sensor Input 1	Integer	0 -no, 1-yes	
.1.3.6.1.4.1.49136.100.3.31.0	Relay Output 1	Integer	Open, Closed	

Subgroup 4 – Unit Parameters
Fixed unit for each Sensor.

Table 4-4-4 Unit parameters

OID	Descrption	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.4.1.0	Temperature	String	°F or °C (User-defined)*	Read-Only
.1.3.6.1.4.1.49136.100.4.4.0	Humidty	String	%	
.1.3.6.1.4.1.49136.100.4.5.0	AC Voltage	String	mV	
.1.3.6.1.4.1.49136.100.4.6.0	DC Voltage	String	mV	
.1.3.6.1.4.1.49136.100.4.10.0	Dry Contact Input 1	String	Boolean	
.1.3.6.1.4.1.49136.100.4.11.0	Dry Contact Input 2	String	Boolean	
.1.3.6.1.4.1.49136.100.4.12.0	Dry Contact Input 3	String	Boolean	
.1.3.6.1.4.1.49136.100.4.26.0	Digital Sensor Input 1	String	Boolean	
.1.3.6.1.4.1.49136.100.4.31.0	Relay Output 1	String	Boolean	

Subgroup 5 – Minimum Value Parameters
Fixed minimum value of each sensor.

Table 4-4-5 Minimum value parameters

OID	Descrption	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.5.1.0	Temperature	Integer	-40	Read-Only
.1.3.6.1.4.1.49136.100.5.4.0	Humidty	Integer	0	
.1.3.6.1.4.1.49136.100.5.5.0	AC Voltage	Integer	0	
.1.3.6.1.4.1.49136.100.5.6.0	DC Voltage	Integer	0	
.1.3.6.1.4.1.49136.100.5.10.0	Dry Contact Input 1	Integer	0	
.1.3.6.1.4.1.49136.100.5.11.0	Dry Contact Input 2	Integer	0	
.1.3.6.1.4.1.49136.100.5.12.0	Dry Contact Input 3	Integer	0	
.1.3.6.1.4.1.49136.100.5.26.0	Digital Sensor Input 1	Integer	0	
.1.3.6.1.4.1.49136.100.5.31.0	Relay Output 1	Integer	0	

Subgroup 6 – Maximum Value Parameters
Fixed maximum value of each sensor.

Table 4-4-6 Maximum Value Parameters

OID	Descrption	Type	Parameters	Access
.1.3.6.1.4.1.49136.100.6.1.0	Temperature	Integer	75	Read-Only
.1.3.6.1.4.1.49136.100.6.4.0	Humidty	Integer	100	
.1.3.6.1.4.1.49136.100.6.5.0	AC Voltage	Integer	300000	
.1.3.6.1.4.1.49136.100.6.6.0	DC Voltage	Integer	60000	
.1.3.6.1.4.1.49136.100.6.10.0	Dry Contact Input 1	Integer	1	
.1.3.6.1.4.1.49136.100.6.11.0	Dry Contact Input 2	Integer	1	
.1.3.6.1.4.1.49136.100.6.12.0	Dry Contact Input 3	Integer	1	
.1.3.6.1.4.1.49136.100.6.26.0	Digital Sensor Input 1	Integer	1	
.1.3.6.1.4.1.49136.100.6.31.0	Relay Output 1	Integer	1	

5. Digital Input and Dry Contacts

5.1. Digital Input

The SM9S Site Monitor has 1 digital input that allows for the connection of external signals, such as sensors or switches, to monitor specific events.

- The digital input sensor accepts voltage signals between 0 and 60 V_{DC};
- It will be interpreted as logic "1" for values between 5 and 60 V_{DC} and logic "0" for values below 5 V_{DC};
- The input is isolated with an opto-coupler, and the pins are related as per the following diagram:

Fig. 5-2 Opto Coupler Diagram

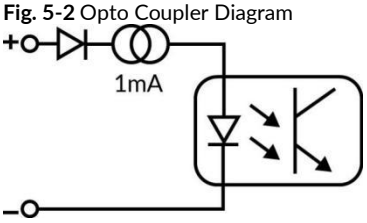
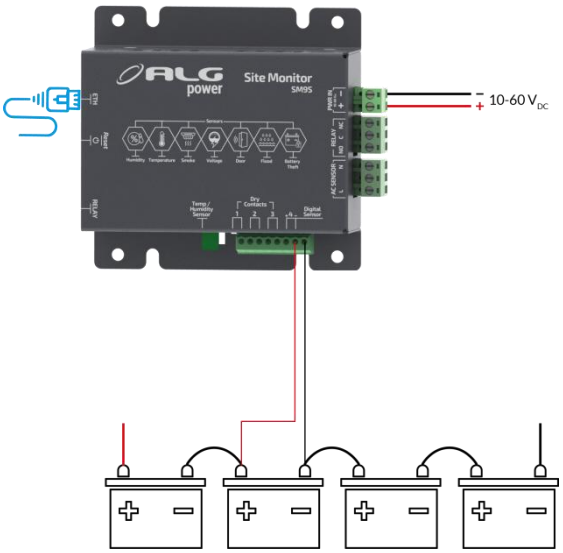


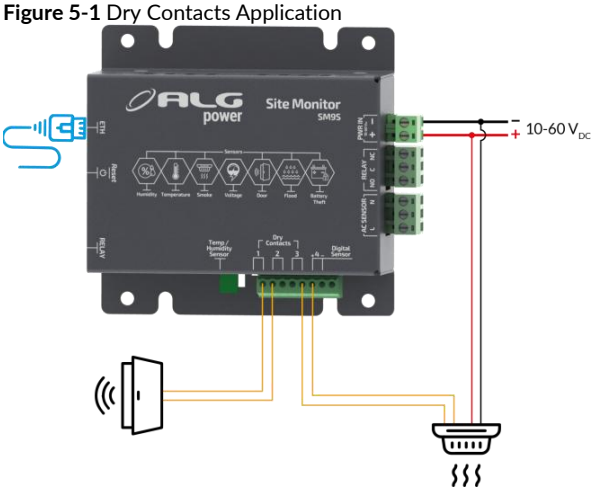
Fig. 5-3 Digital Input Application for Battery Theft



5.2. Dry Contacts

The SM9S Site Monitor has 3 dry contacts that can be used to activate or deactivate external devices, such as alarms, lights, or other equipment, depending on the user's needs.

Figure 5-1 Dry Contacts Application

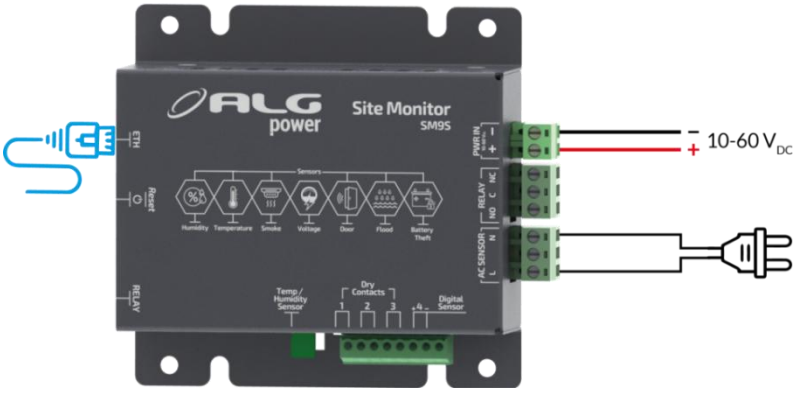


6. Typical Application Diagrams

6.1. Monitoring the Network Voltage

Reads the AC voltage from the network.

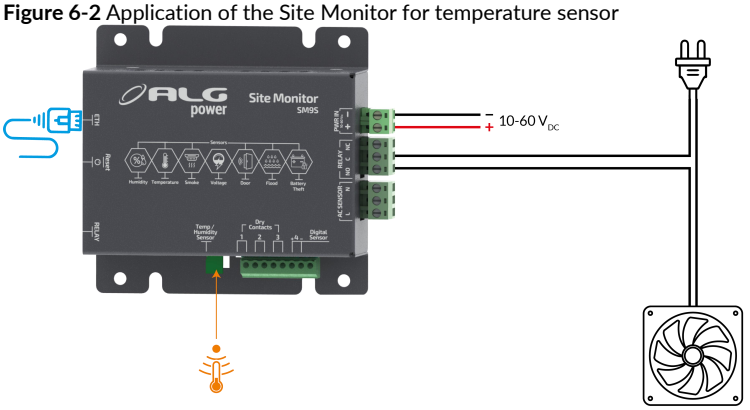
Figure 6-1 Application for monitoring network voltage

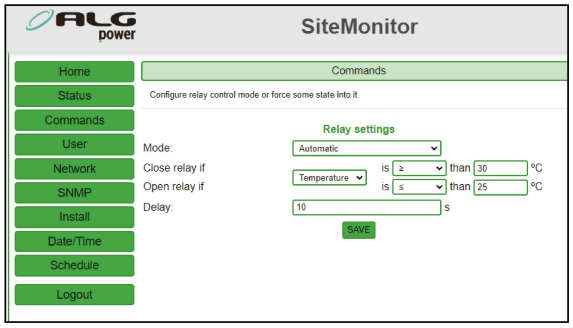


6.2. Using as a Thermostat

To use the Site Monitor SM9S as a thermostat, configure the maximum and minimum temperature limits in the "Commands" tab to activate the relay through the integrated temperature sensor.

Figure 6-2 Application of the Site Monitor for temperature sensor

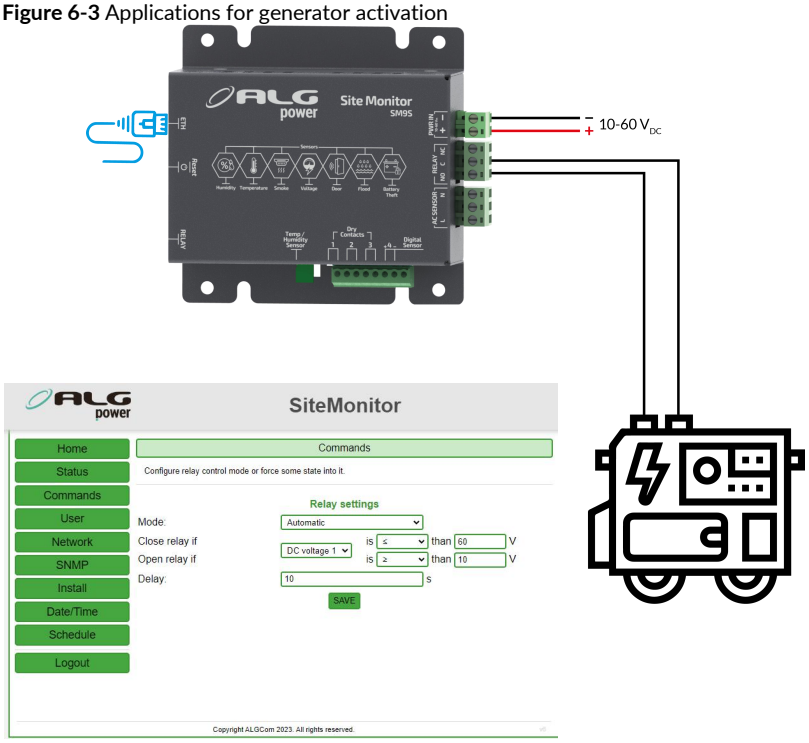




6.3. Activating the Generator

To activate the automatic generator, it is necessary to configure the maximum and minimum voltage limits in the "Commands" tab. This way, if the battery voltage falls below the established limit, the relay will be triggered, activating the generator.

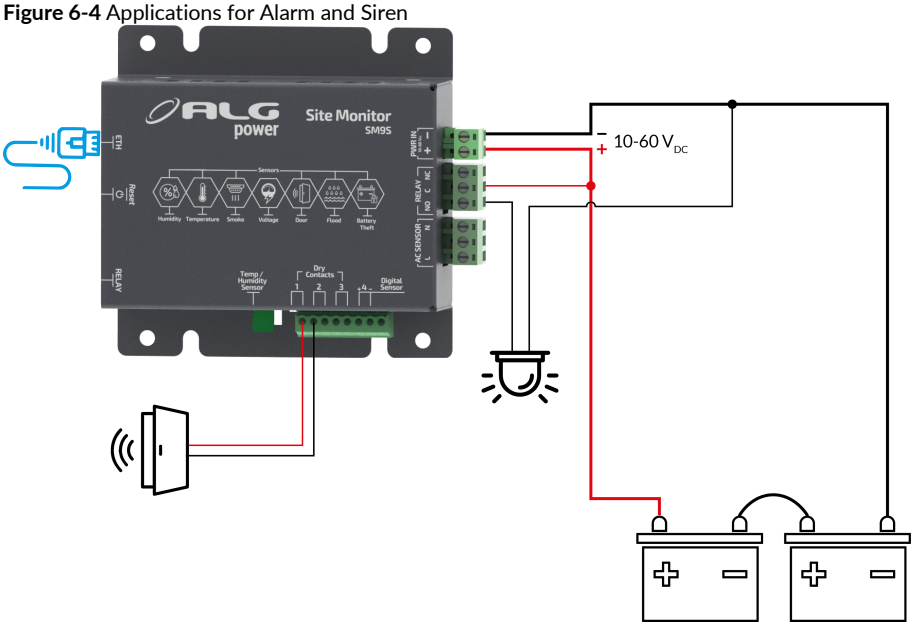
Figure 6-3 Applications for generator activation



6.4. Installing Alarm and Siren

The alarm will be triggered when the door is opened.

Figure 6-4 Applications for Alarm and Siren



7. Warranty Terms

1 - Warranty Period and Proof of Warranty
The warranty period granted by ALGcom will be 1 YEAR, starting from the date of purchase, as per the sales invoice.

Information regarding the warranty period and expiration date can be obtained by contacting sac@algcom.com.br. Please provide the model, serial number or lot number, manufacturing date, and sales invoice number.

Note: The warranty is only valid upon presentation of the sales invoice.

2 - Warranty Attention
It is the installer's responsibility to comply with the regulations applicable to the installation and to follow the instructions contained in this manual;

Use only components and fastening elements provided by ALGcom in the assembly kit;

Maintenance must be performed by authorized and trained personnel to minimize risks to oneself and others;

Conduct at least one annual inspection of the installation to verify the condition of the equipment;

3 - Loss of Warranty
The warranty does not cover, and the burden is on the buyer:

Violation, modification, replacement of components, adjustments, or repairs made by unauthorized personnel;

Damages suffered by the product as a result of improper installation and use outside the conditions established in this manual;

Parts that naturally wear out with regular use such as: connectors, power cables, fans, varistors, or any other parts that show signs of wear;

Circuit boards and components broken by electrical discharge, scorched, or with signs of damage caused by electrical discharge;

Damages caused by lack of grounding connection;

Protective elements such as varistors showing visible electrical discharge;

Any other damage that is not classified as a manufacturing defect.

4 - Recommendations
Carefully read the installation and operation instructions contained in this manual before putting the product into operation;

Ensure that the power supply voltage is appropriate for the values established in this manual;

Keep the product protected from the elements (rain, humidity, wind, sunlight, etc.).

5 - Repair and Technical Assistance Services
ALGcom offers its customers repair and technical assistance services for its products. Please pay attention to the following information:

Products out of warranty will be repaired upon budget approval by the customer;

Products repaired outside the original warranty will have a 3 (three) month warranty on the repair;

For products repaired within the warranty period, the expiration date of the warranty remains the same as the original;

6 - Warranty Service Execution Location
For products not purchased directly from the ALGcom factory, please first contact the representative or authorized reseller where the purchase was made so that this channel can reach out to ALGcom's customer service (SAC).

In case of needing repair for products under warranty, contact the authorized ALGcom product distributor in your country. If none exists, contact ALGcom's SAC directly.

For complaints, comments, questions, or suggestions regarding products or repairs, call our Customer Service: +55 54 3201.1903.

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