MorphoAccess® SIGMA Series

Quick User Guide

SSE-0000101124-01
PRODUCT OVERVIEW

Product packaging checklist:

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<th>Qty</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>MorphoAccess® SIGMA Device</td>
</tr>
<tr>
<td>1</td>
<td>Wall Mount Plate</td>
</tr>
<tr>
<td>1</td>
<td>Battery</td>
</tr>
<tr>
<td>1</td>
<td>Protection Accessory (WR Product only)</td>
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<td>1</td>
<td>Quick Installation Guide</td>
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Note: Electronic documentation is provided in Adobe® Acrobat® format (PDF). Adobe® Acrobat® Reader is available at [http://www.adobe.com](http://www.adobe.com).

Terminal Overview:

The MorphoAccess® SIGMA Series terminals offer a simple and ergonomic man-machine interface designed for access control based on Fingerprint/Face recognition technology. All connections of the terminal described hereafter are of SELV (Safety Electrical Low Voltage) type.

Diagram:
- Camera
- Speaker
- LCD Touch panel
- Contactless Card area
- Logo on cover when available
- Biometrical sensor (optical)
- USB port (for configuration and settings with a USB mass storage key)
- Sensor protection cap (optional, WR only)
- Micro
To secure an access, Morpho recommends installing the MorphoAccess® Sigma Series terminal as a part of the typical Access Control environment, which consists:

**The MorphoAccess® Sigma Series terminal itself**

Its role is to perform one-to-many biometric identification or one-to-one biometric verification

**An Access Controller (3rd party product)**

The MorphoAccess® Sigma Series terminal and the Controller are communicating through one of the TCP/IP, Wiegand, Dataclock or RS485 protocols:

- The MorphoAccess® Sigma Series terminal sends User ID to the Controller
- The Controller sends its decision to the MorphoAccess® Sigma Series terminal (which displays access is granted or denied on LCD screen)
- The MorphoAccess® Sigma Series terminal sends an alarm signal to the Controller as soon as a malicious operation occurs

**An Alarm (3rd party product)**

The MorphoAccess® Sigma Series terminal sends the command to activate the Alarm as soon as a malicious operation such as Tamper, is detected

**A Door Electric Latch or equivalent (3rd party product)**

The Controller is the one which sends the command to activate the latch if access is granted (i.e. if the individual's User ID is listed in the Controller White List). Connection between these two elements is done through a dry contact.
Before proceeding, make sure that the person in charge of installation and connections, is properly connected to earth, in order to prevent Electrostatic Discharges (ESD).

Inversion of +12V and GND will damage the product.

Power supply from electrical source shall be switched off before starting the installation.

**Power Supply**

**External Power Supply:**

Must comply with CEE/EEC EN60950 standard.

12-24 Volts (regulated) 1 Amp min @12V.

Could be provided by a 12 Volts Wiegand power supply, which complies with the Security Industry Association's Wiegand standard March 1995.

**Power over Ethernet (POE):**

MorphoAccess® Sigma Series terminal's power supply can also be provided by the Ethernet using RJ45 connection (Power Over Ethernet mode using optional POE module).

**Administration Interface**

Ethernet connections to the terminal are made through a standard RJ-45 connector on the back of the terminal.

Serial Port is used to connect device with access controller/PC's using protocols RS485/RS422.

USB Internal Port is used to plug a Wi-Fi™ or 3G USB adapter.

USB External Port is limited to USB mass storage key (power consumption shall not exceed 200mA). Refer in Terminal Overview Figure.

Wiegand Input and Output for connecting to host systems and controller. Electrical interface conforms to the Security Industry Association's Wiegand standard March 1995, and it is 5V TTL compatible.
**WIRING DETAILS**

**Output Relay:**

- **Inductive load management** requires a parallel diode for a better contact lifetime.

**Battery:**

- The battery shall be inserted in the dedicated area in order to keep date and time when power is accidentally cut off.
- **Battery lifetime is limited when power is off:** at least 48 hours at 25°C. Don’t forget to change battery after long power cut or after several short power cut.

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**Single Door Access Control (SDAC):**

- **If door contact is not used, GPI1 and GPO2 shall be connected together**

Before any installation, please refer to the MorphoAccess® SIGMA Series Installation Guide (Electrical Interface section).
TYPICAL ACCESS CONTROL PROCESS

On Access Request, the terminal checks user's access rights using a biometric check.

If the result of the check is successful (access granted), a message is sent to the Central Access Controller for additional access rights check.

If the user is allowed to access to the protected zone, the central access controller returns an "access granted" message to the terminal and a "open" command to the gate controller.

Note: User must be enrolled in the terminal database or contactless card, in order to initiate authentication.
ACCESS CONTROL MODES

Identification Mode

- It is mandatory to enable "Biometric Trigger Event"
- Access Request initiated by presenting fingerprint
- Terminal search for fingerprint of user in local database
- Access Granted on match found
- Access denied on no match found

Authentication Mode

- Access request can be triggered by presenting contactless card, entering user ID through keypad or through Wiegand command
- Terminal compares the data provided by the user with the reference data provided by the same user during enrolment phase.
- Access Granted on match found
- Access denied on no match found

Multifactor Mode

- Both identification and authentication modes are activated
- The identification process if the user places finger on the biometric sensor first, or
- The authentication process if the user shows card first
- Access Granted on match found
- Access denied on no match found

Proxy Mode

- In Proxy mode, the access control is performed remotely by the Host System
- Identification event is triggered by distant command
- On presenting finger, the terminal will send result to host system (identified successfully or failed)
- Host system will trigger access granted or failed through distant command
First Boot Assistant (FBA) is launched as soon as the MorphoAccess® SIGMA Series terminal is up and running. All the fundamental settings can be done from an FBA screen itself. FBA can also set to launch on terminal reboot.

Pre-requisites:
- Verify that the battery is attached with terminal beforehand. Battery backup is necessary for preventing data loss on power cut/power loss instances
- If terminal is unpowered for a too long time, it will be necessary to change the battery

1. **Date & Time Configuration**: you can configure the current date, time and time zone on the terminal

2. **Language Configuration**: selection of two languages, i.e. English and French, is available.

3. **Trigger Event**: Activate trigger events such as Biometric, Contactless Card, Keypad or External Port. These events when triggered authentication process is initiated.

4. **Network Configuration**: allows you to configure Ethernet or WLAN (Wi-Fi Network) parameters such as IP mode, WLAN Security parameters, etc.

5. **Recognition Mode**: allows you to select Identification mode as ‘ON’ or ‘OFF’. In Identification mode, the terminal matches a biometric input by user, with whole biometric data stored in the terminal database.

6. **Protocol Configuration**: allows you to select supported legacy systems i.e. Bioscrypt Terminals (Legacy L1 mode) and J Series Terminals (Legacy Morpho mode)

7. **Password Configuration**: using this parameter you can change default password, i.e. 12345, to a new password for login to

8. **First Boot Configuration Storage Type**: If you select Permanent, then the configuration done at first boot are stored forever in terminal. Temporary, means FBA configuration will be required on every reboot.
ENROLMENT PROCESS

Access path: User Menu > Add/Enrol User

New users are entered into the database through the process of “enrolment”. During this process, a user’s finger print is capture using biometric sensor and a finger print template in stored along with other details. The biometric authentication is done by matching finger prints by the ones stored in terminal db.

Using administration menu of MorphoAccess® SIGMA Series terminal, user enrolment can be performed in below:

- Terminal Database
- Contactless Smart Card
- Terminal Database + Contactless Smart Card

Enrolment requires gathering below details:

- User’s Name and Last name
- Capture Fingers for biometric check. Terminal auto-selects best of three fingerprints.
- Administration rights to allow no admin, full admin or database admin rights
- User PIN for PIN based authentication
- Duress finger capture
- Selection of access schedule and holiday schedule
- Dynamic message configuration
- Set expiry date
- Select white list, VIP list user
- User specific rules definition

Note: Refer to User Enrolment section in MorphoAccess® SIGMA Series Administration Guide.
The terminal is designed to capture the area containing the most useful biometric data. In fingerprints, this is usually at the centre of the first phalanx.

### Area Containing Maximum Info

<table>
<thead>
<tr>
<th>Area Containing Maximum Info</th>
<th>Recommended Fingers</th>
<th>Finger Condition for Finger Print Acquisition</th>
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</table>
| Terminal can capture index (fore), middle and ring fingers. Among these, we advise people to use preferably the middle finger, which is usually the most suitable, or the fore finger as a second option. The ring finger indeed is not recommended for those who have short fingers. | Middle Finger | • The finger is cold  
✓ Solution: warm up the finger |
| | Ring Finger | • The finger is wet  
✓ Solution: wipe the finger |
| | Fore Finger | • The finger is dry  
✓ Solution: warm up the finger and/or add a little bit of humidity |
| | | • The finger is dirty  
✓ Solution: wash hands |
| | | • Remove bandages or adhesive tapes from the fingerprint area, and from the 2nd phalanx of the finger |
| | | • Do not press or tense finger to avoid blood vessels constriction |
ENROLMENT BASICS 2/4

Ideal Finger Position

**Finger Height**

*Incorrect Position:*
- Do not place the finger tip on the top of the fingertip guide.
- Do not place the finger tip on the surface of the sensor

*Correct Position:*
- Align centre of 1st phalanx with sensor centre

**Finger Angle**

*Incorrect Position:*
- Do not tilt the finger on right or left side of the sensor

*Correct Position:*
- The finger must be parallel to sensor sides
Ideal Finger Position

**Finger Inclination**

Incorrect Position:
- Do not leave the finger in the air
- Do not bend finger upward or downward

Correct Position:
- Finger must be parallel to the sensor surface

**Finger Rotation**

Incorrect Position:
- Do not roll finger

Correct Position:
- Finger must be parallel to the sensor surface
Authentication of the user is initiated using contactless card. User need to place card towards the contactless card reader. Terminal will read the user id stored in the card, and start authentication process, as required.

If PIN is registered in user profile and PIN check is enabled, then after presenting contactless card, it is required to enter PIN, for authentication. Enter PIN using keypad on LCD screen.
TIME AND ATTENDANCE

MorphoAccess® SIGMA Series terminals can be configured to work in Time and Attendance (T&A) mode, in which each MorphoAccess® SIGMA Series terminal event logged includes some attendance information such as entry time, exit time, etc.

T&A Mode can be set as mandatory or optional

Using Webserver interface you can configure T&A mode

It is possible to activate and configure T&A mode using a set of parameters from Webserver

In normal mode, there are 4 function keys that can be associated with T&A action and displayed to the user. When user tries to access by placing finger print, terminal will display above T&A screen to select an action.

In extended mode, there are 16 function keys that can be configured and displayed to the user. When user tries to access by placing finger print, terminal will display above T&A screen to select an action.
MorphoAccess® SIGMA Series terminal is equipped with Videophone feature that is capable of making a video call to computer based software. This feature is useful for end users to connect with a customer care centre for resolving any queries.

Video Phone can be configured using terminal administration menu: System Menu > Terminal Settings > Video Phone Configuration

- You can Add a Video Phone Server in Terminal
- View or Delete a Video Phone server

Note: Terminal can be connected with video phone servers only through Ethernet or Wi-Fi network

See below call flow when video phone call is initiated:

1. User makes video call
2. Call is sent to Server
3. Server with Linkphone Application
4. Call is routed to call centre
5. Supporting User on Video Call

Got stuck!
ABOUT WEB SERVER / MORPHOBIOTOOLBOX

The terminal can be configured using an internet browser connected to the embedded Webserver application. This application enables to control the settings of the terminal from their desk. The Webserver can be reached through Ethernet or Wi-Fi network, using IP address of terminal and terminal login and password.

Note: For more information, refer to “Terminal Configuration through Webserver” in MorphoAccess® SIGMA Series Administration Guide.

The other easy way to configure the MorphoAccess® SIGMA Series terminal is to use MorphoBioToolBox application.

Note: For more information, refer to MorphoBioToolBox online User Guide.
Warning
- The manufacturer cannot be held responsible in case of non-compliance with the following recommendations or incorrect use of the terminal.

General precautions
- Do not attempt to repair the MorphoAccess® SIGMA Series terminal yourself. The manufacturer cannot be held responsible for any damage/accident that may result from attempts to repair components. Any work carried out by non-authorized personnel will void your warranty.
- Do not expose the terminal to extreme temperatures.
- Only use the terminal with its original accessories. Attempts to use unapproved accessories with your terminal will void your warranty.
- Due to electrostatic discharge, and depending on the environment, synthetic carpeting should be avoided in areas where the MorphoAccess® SIGMA Series terminal has been installed.

Areas containing combustibles
- It is highly recommended not to install the terminal in the vicinity of gas stations or any other installation containing flammable or combustible gases or materials.

Ethernet connection
- It is recommended to use a category 5 shielding cable (120 Ohms). It is also strongly recommended to insert a repeater unit every 90m.
- Extreme care must be taken while connecting Ethernet wire to the MorphoAccess® SIGMA Series terminal block board since low quality connection may strongly impact Ethernet signal sensibility.
- It is recommended to connect Rx+ and Rx- with the same twisted-pair wire (and to do the same with Tx+/Tx- and the other twisted-pair wire).
Specific precautions for terminals fitted with a contactless smartcard reader
- It is recommended to install MorphoAccess® SIGMA Series terminals equipped with a contactless smartcard reader at a certain distance (> 30cm) from metallic elements such as iron fixations or lift gates. Performances in terms of contactless badge reading distance will decrease when metallic elements are closer.

SD Card
- We advise you to use Brand name card such as Verbatim.
- Use the class card type 10 for better performances.
- We advise the tool here to format the SD card before plugging in the device. Here we are using this tool: Ease US Partition Master to format it in EXT format www.partition-tool.com.

Date / Time synchronization
- If you want to use the MorphoAccess® SIGMA Series terminal for application requiring high time precision, we recommend synchronizing regularly your MorphoAccess® SIGMA Series terminal time with an external clock.
- The MorphoAccess® SIGMA Series terminal clock has a +/- 10 ppm typical time deviation at +25°C (roughly +/- 1sec per day).
- At lower and higher temperature, deviation may be more important.

Cleaning precautions
- A dry cloth should be used to clean the terminal, especially the biometric sensor.
- The use of acid liquids, alcohol or abrasive materials is prohibited.
DOCUMENTATION

Documents about installing the terminal
MorphoAccess® SIGMA Series Installation Guide, Ref. SSE-0000100543
This document describes terminal physical mounting procedure, electrical interfaces and connection procedures. This document is in English.

Documents about administrating / using the terminal
MorphoAccess® SIGMA Series Quick User Guide, Ref. SSE-0000101124-01
This document gives a quick overview of the product and the basics of configuration and use. This document is in English.

MorphoAccess® SIGMA Series Administrator Guide, Ref. SSE-0000100663
This document describes the different functions available on the terminal and procedures for configuring the terminal. It also contains the full description of all the configuration parameters for the terminal. This document is in English.

MorphoAccess® SIGMA Series Parameters Guide, Ref. SSE-0000101115
This document contains the full description of all the terminal configuration parameters. This document is in English.

Documents for the developer
MorphoAccess® SIGMA Series Host System Interface Specification, Ref. SSE-0000101114
This document describes the commands supported by the MorphoAccess® terminal. This document is in English.

MorphoAccess® SIGMA Series Remote Message Specification, Ref. SSE-0000101111
This document describes the format of messages sent by the terminal to a distant system. This document is in English.

Release note
For each firmware version, a release note is published describing the new features, the supported products, the potential known issues, the upgrade / downgrade limitations, the recommendations, the potential restrictions…
CONTACT

Customer service
Morpho
SAV Terminals Biometrics
Boulevard Lénine - BP428
76805 Saint Etienne du Rouvray
FRANCE
Phone: +33 2 35 64 53 52

Hotline
Morpho
Support Terminals Biometrics
18, Chaussée Jules César
95520 Osny
FRANCE
hotline.biometrics@morpho.com
Phone: + 33 1 58 11 39 19
(9H00am to 5H30pm French Time, Monday to Friday)
http://www.biometric-terminals.com/
A login and password are required to access the full site content. If you
don't have one, please send us an email to the address above to request
one.
Contact by email is preferred.