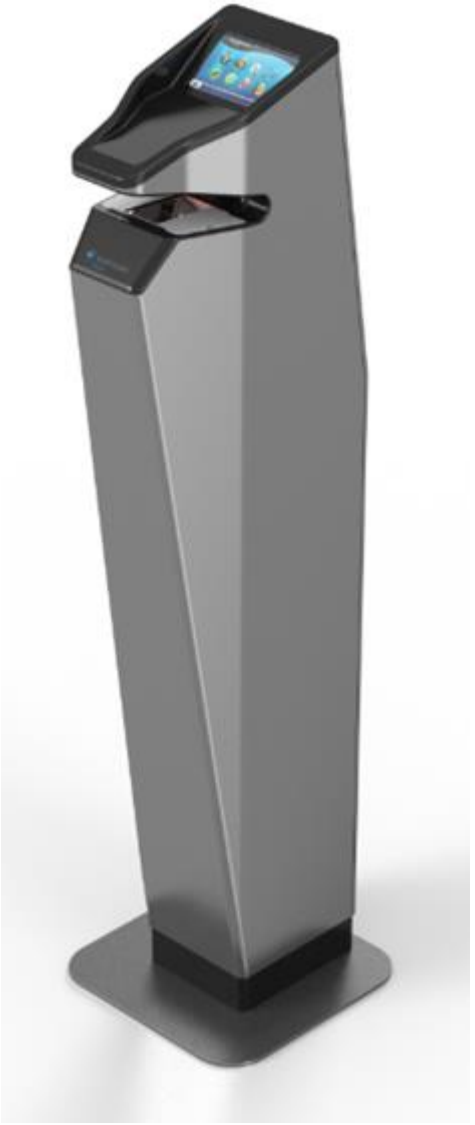
MorphoWave Tower

Quick User Guide



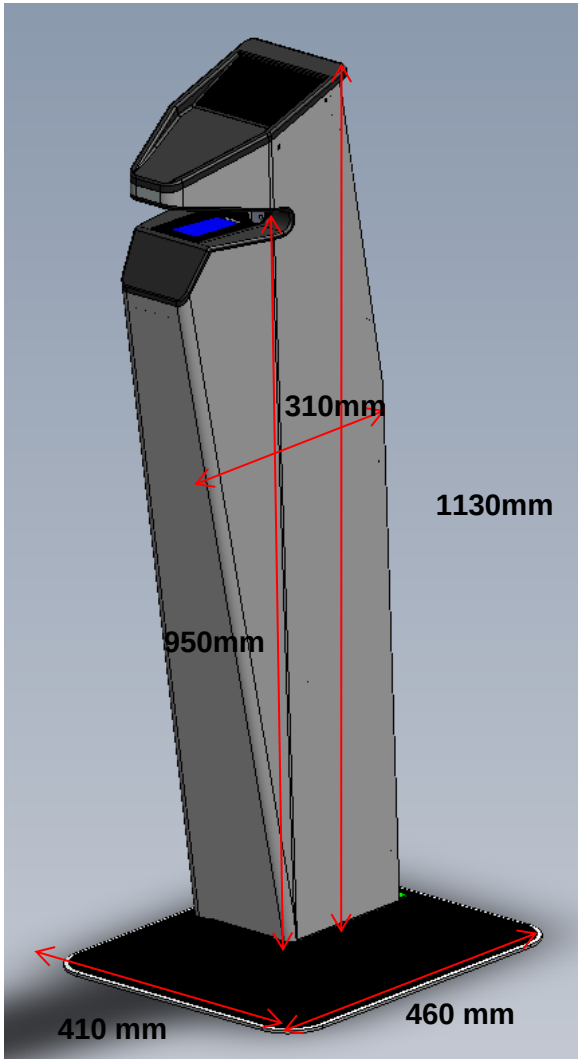
2015-8-13 V1.1
0301-000005-01

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PHYSICAL OVERVIEW

- Sensor is at height of 950mm from the base plate
- Weight with all internal components is approximately 31kg (68 lbs)



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COMPONENT OVERVIEW

MorphoWave is a product that consists of several integrated components. The table below offers a high level description of the various components that makeup the MorphoWave product.

Components	
MorphoWave Tower	Physical tower that encloses all the other components
FiOTF Sensor	Finger on the Fly contactless acquisition device
MA Wave	Provides touchscreen interface and access control and time and attendance features
Network Switch	Connection point for various devices
PC	Controller for FiOTF and other devices
Fan	DC fan used for ventilation
Wiring Sub-panel	MA Sigma wiring sub-panel
Power Supply	12V power supply used to power fan, MA Sigma, and FiOTF Sensor
Power Strip	Universal (100-240V / 50-60Hz) power strip to power components
C13 Power Box	Custom C13 power junction box for hard wiring

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CORE COMPONENT OVERVIEW

Core component checklist:

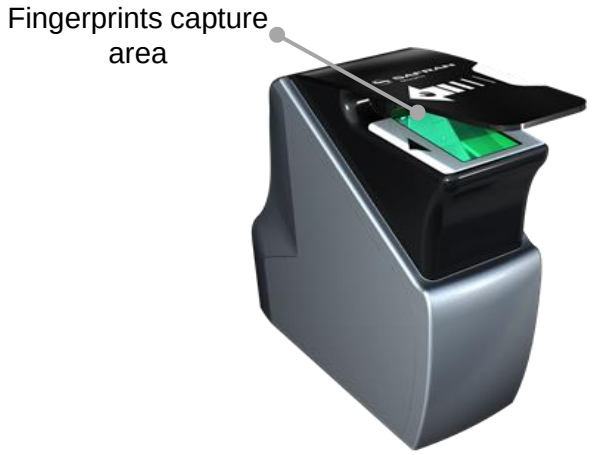
Qty	Description
1	MorphoAccess® Terminal
1	MorphoWave Desktop
1	Wave PC loaded
1	Wave ethernet switch

Product Overview:

The MorphoWave offers the fingerprint contactless sensor technology for a wide range of application as access control and time & attendance. With an easy way to administrate the device through its touchscreen and intuitive GUI. The core components of the MorphoWave are shown below.



MorphoAccess Wave



Finger On The Fly sensor



Wave PC

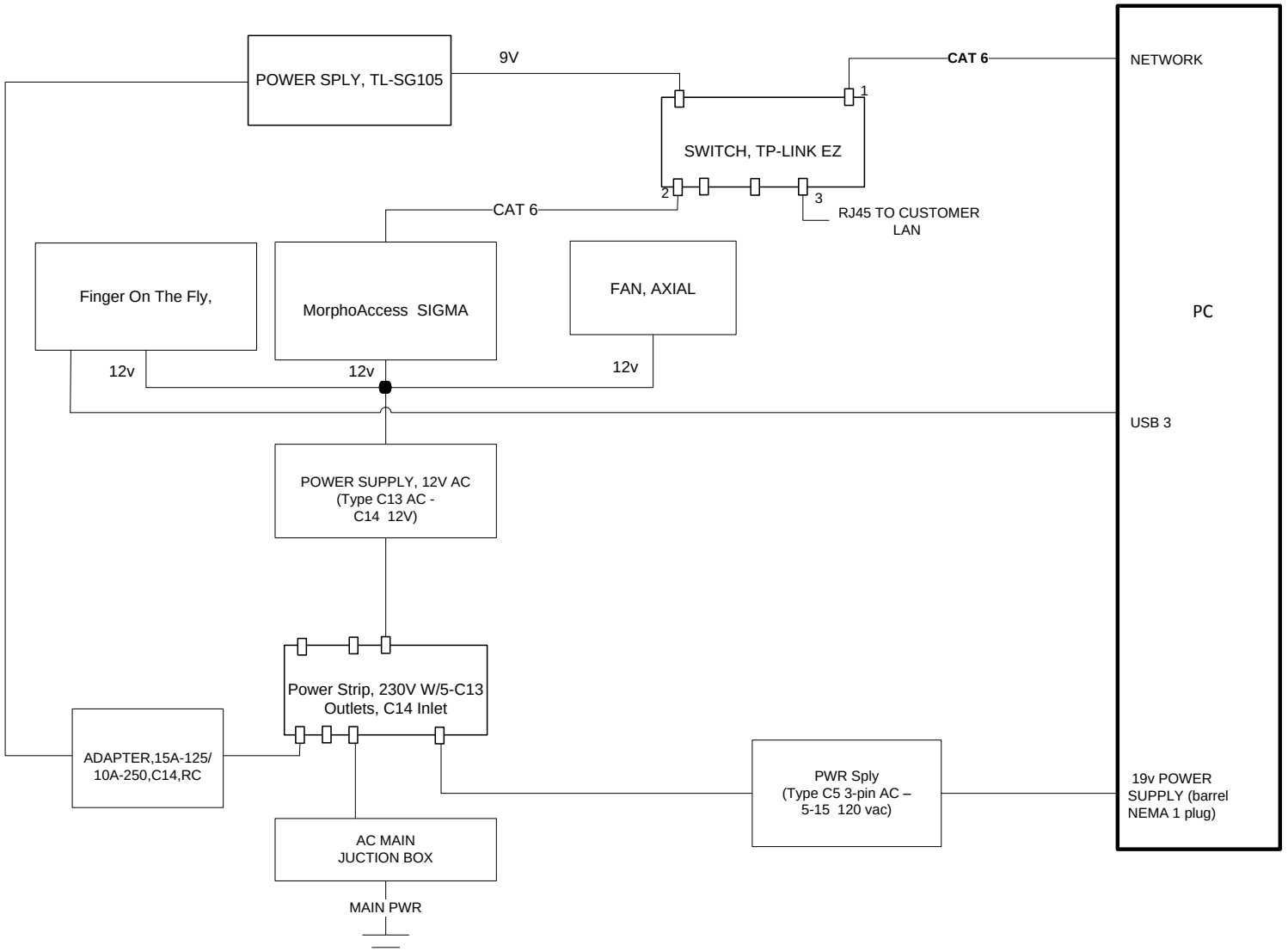


Wave ethernet switch

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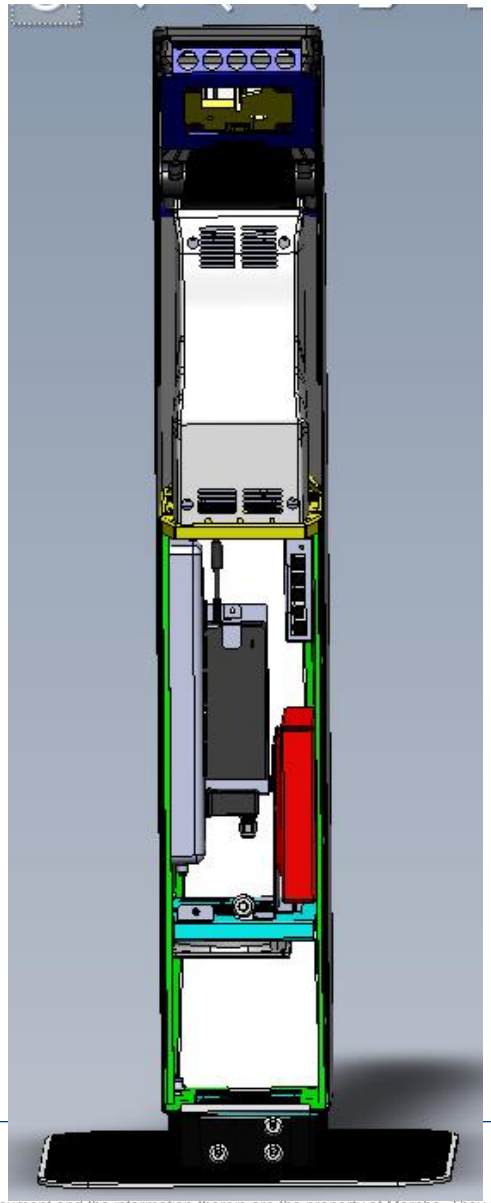
WIRING DIAGRAM

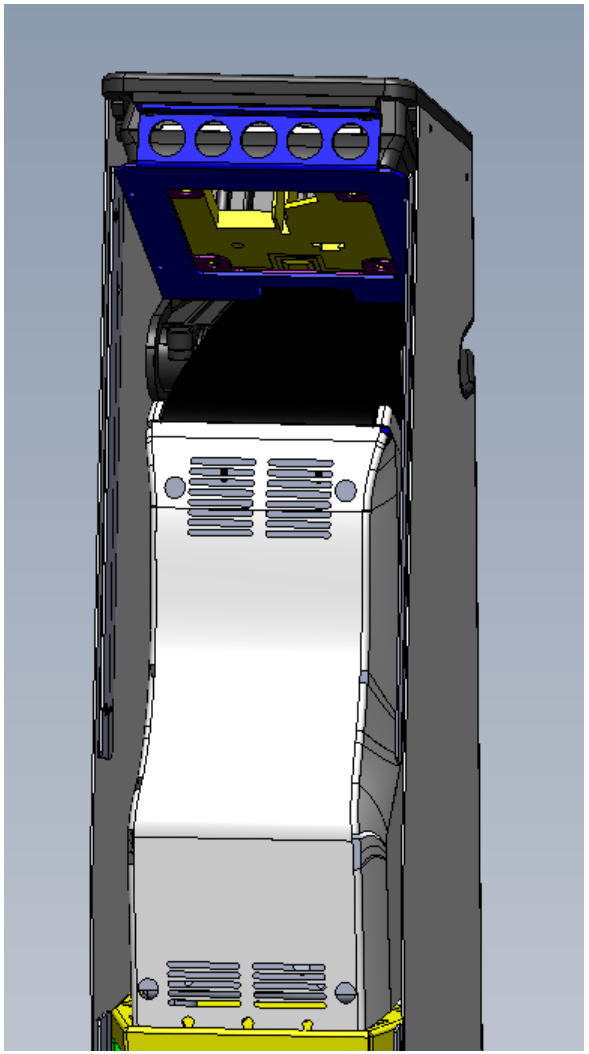


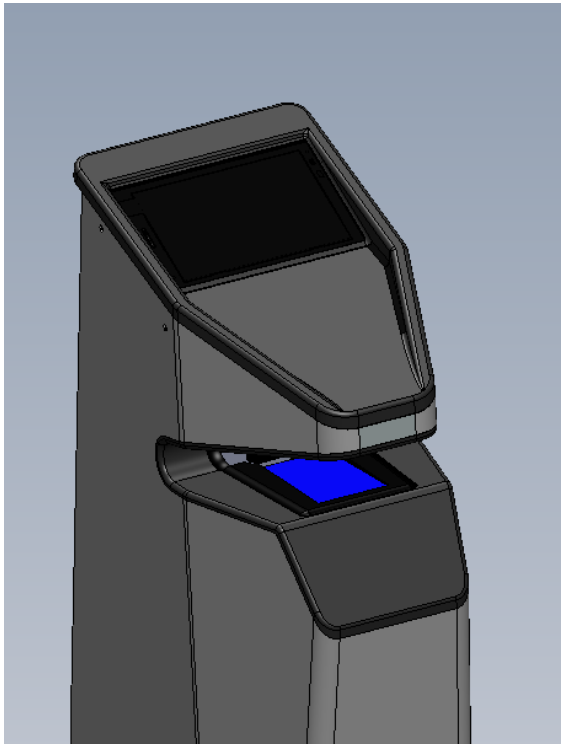
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COMPONENT LAYOUT – MA WAVE & FIOTF



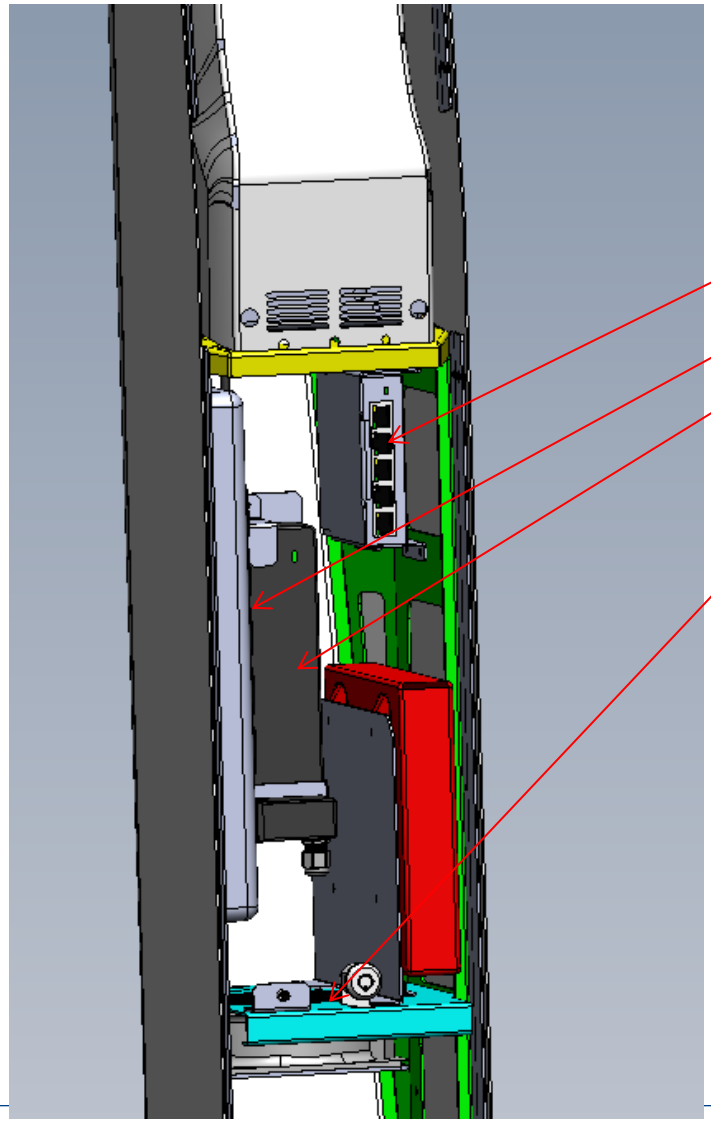




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COMPONENT LAYOUT - COTS

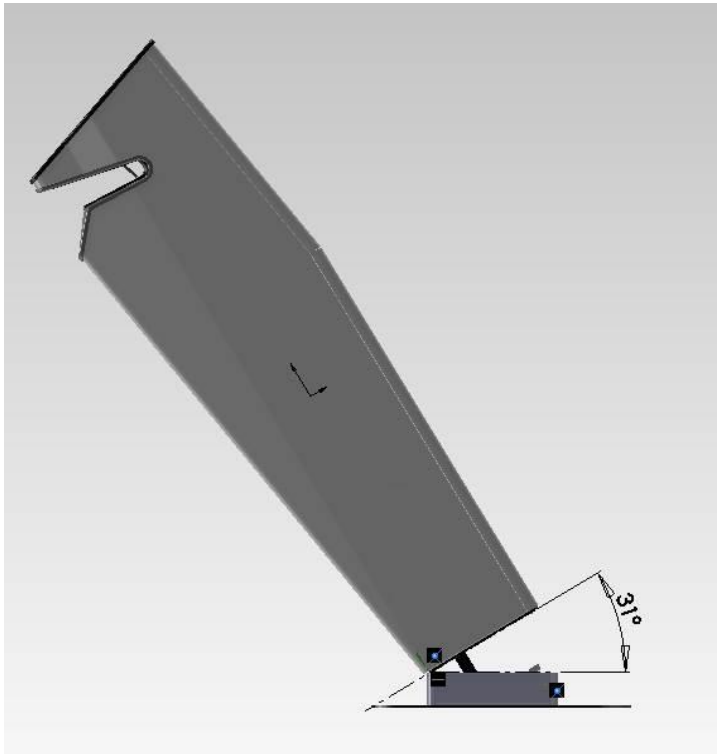


- Switch
- Power Strip
- Power Supply
- Fan

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SERVICEABILITY AND MAINTENANCE



- MorphoWave tower hinged between tower and base
- Provides access to rear components when hard mounted with back of unit near an obstructing object such as a wall or turnstile.
- Rotation of tower allows for servicing and removal of components when tower is installed
- Rotation limited to 31 degrees by stop latch
- Tilt latch mechanism released with specialty key inserted in blind hole (see next slide)

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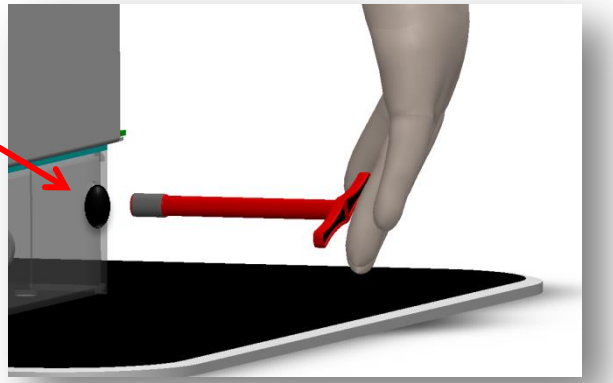
SERVICEABILITY AND MAINTENANCE

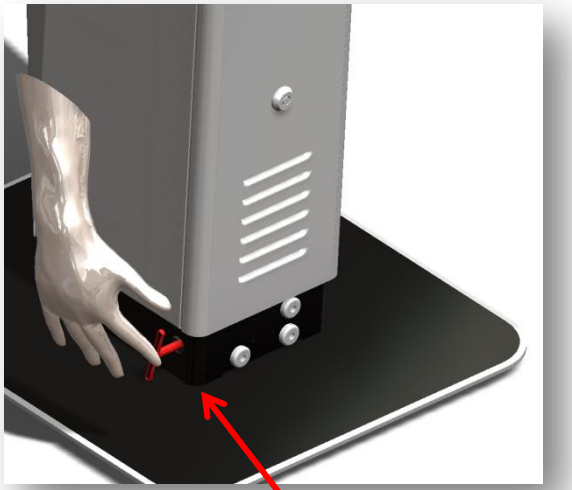
SPECIAL T-HANDLE KEY WHICH IS USED TO ACCESS AND UNLOCK THE LOCK



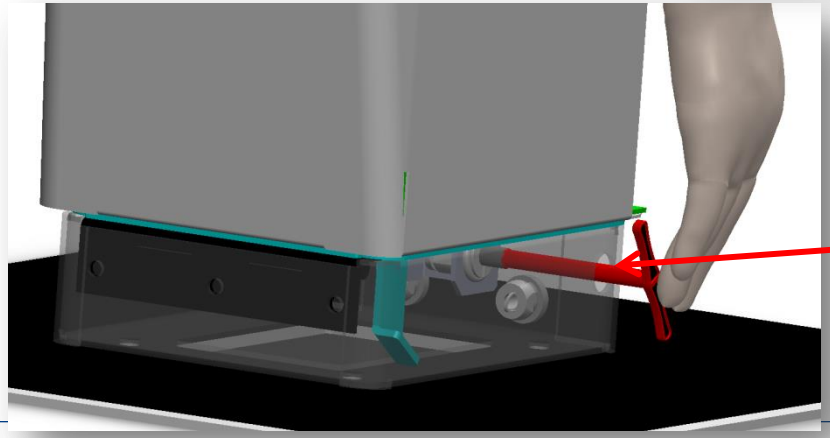


REMOVE PLASTIC COVER WHICH COVERS THE ACCESS HOLES AND THEN INSERT KEY INTO HOLE





¼ TURN COUNTER CLOCKWISE RELEASES THE INNER CATCH

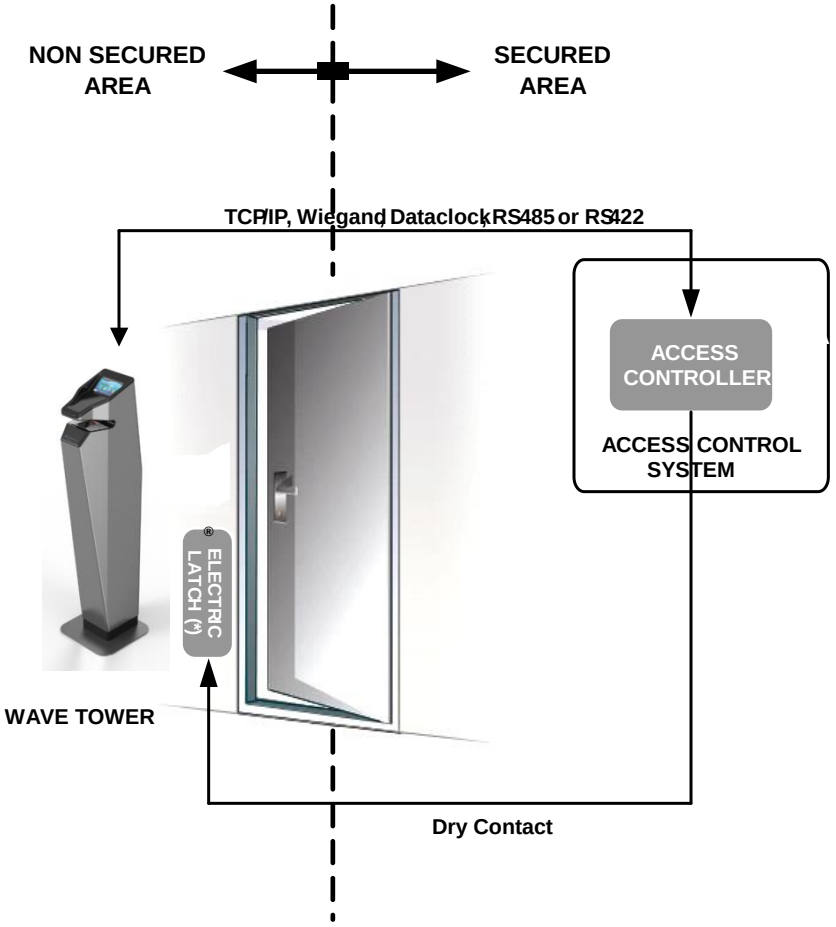


NOTE
THERE ARE TWO ACCESS HOLES
ONE ON LEFT SIDE AND ONE ON RIGHT SIDE
EITHER ONE WILL WORK INDEPENDENTLY

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TERMINAL IMPLEMENTATION



To secure an access, Morpho recommends installing the MorphoWave tower as a part of the typical Access Control environment, which consists:

The MorphoWave product itself

Its role is to perform access right checks using one-to-many biometric identification or one-to-one biometric verification

An Access Controller (3rd party product)

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

- The MorphoWave OEM® terminal sends User ID to the Controller
- The Controller sends its decision to the MorphoWave OEM® terminal (which displays access is granted or denied on LCD screen), and the door controller to open it (if access is granted).

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.

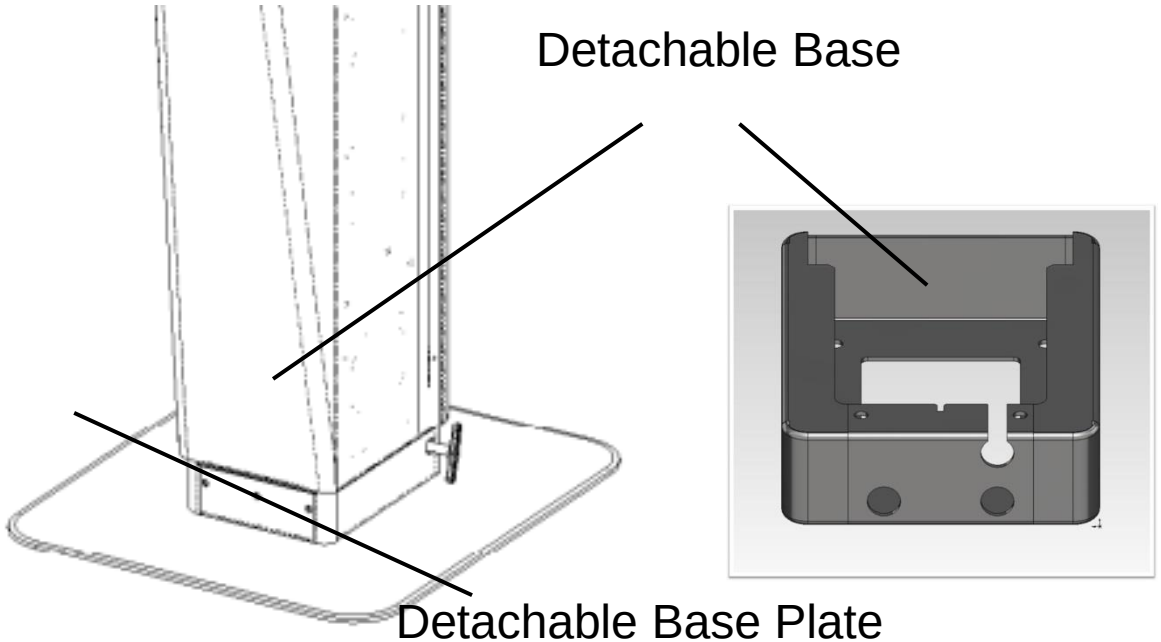
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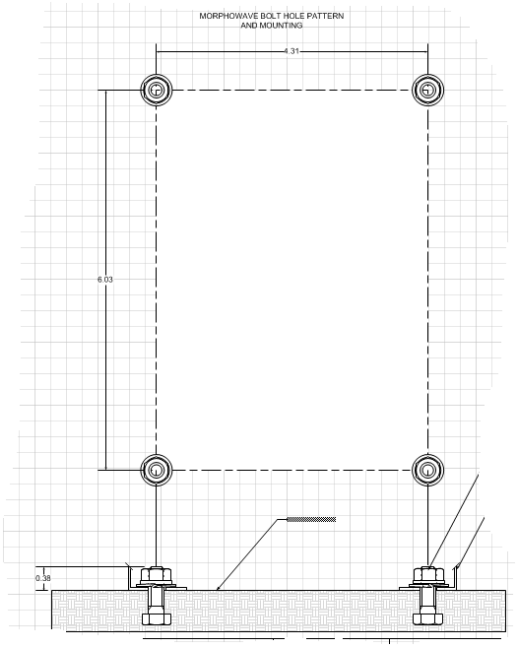
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PHYSICAL INSTALLATION OPTIONS

1) Soft Mount (Demo)
   - Base plate and base supports MorphoWave
   - AC plugs directly into wall socket
   - AC and data routed through mouse holes in base

2) Hard Mount (Fixed)
   - Base plate removed from MorphoWave
   - 4 bolts permanently secure MorphoWave base to flooring
   - AC and data routed through electrical conduit port or through mouse hole in base or from hole in bottom of base





Construction Template for hard mount floor studs

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INPUT POWER REQUIREMENTS

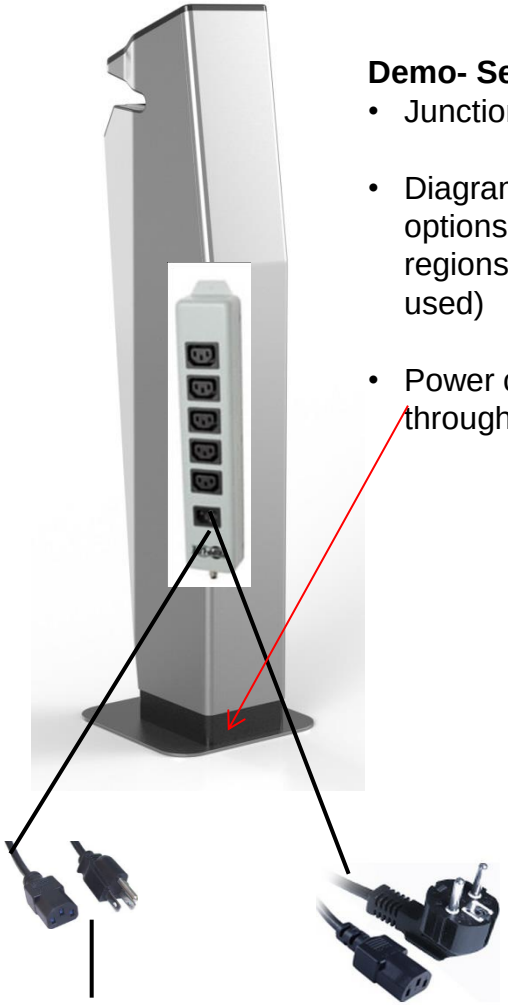
Power Specifications:
Input : 100-240v, 50-60Hz AC, 3A max

Power Strip Input Connector type: IEC-320 C13

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POWER FROM MORPHOWAVE TO SOURCE - OPTIONS



To Socket

Demo- Setup

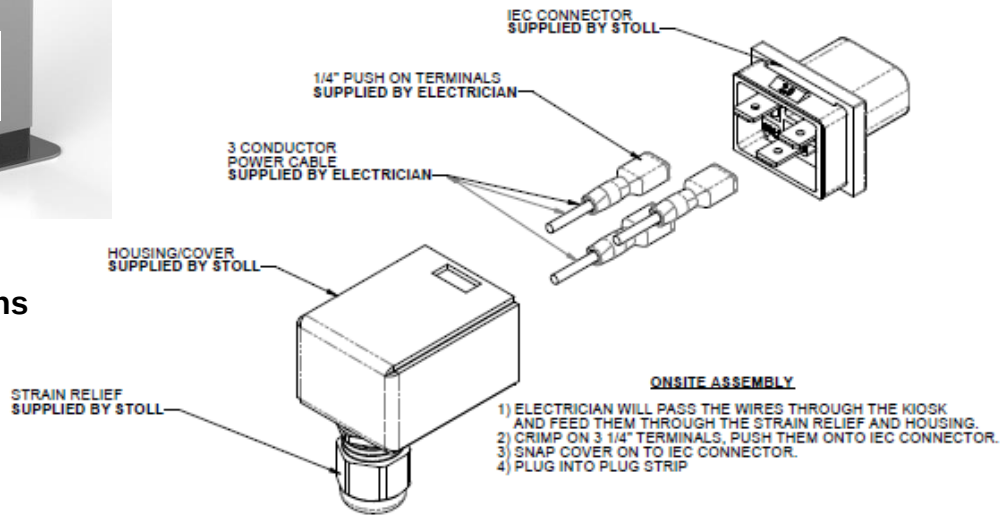
- Junction box is bypassed
- Diagram to left shows options for two different regions (only one will be used)
- Power cable routed through base



To AC Mains

Permanent Installation

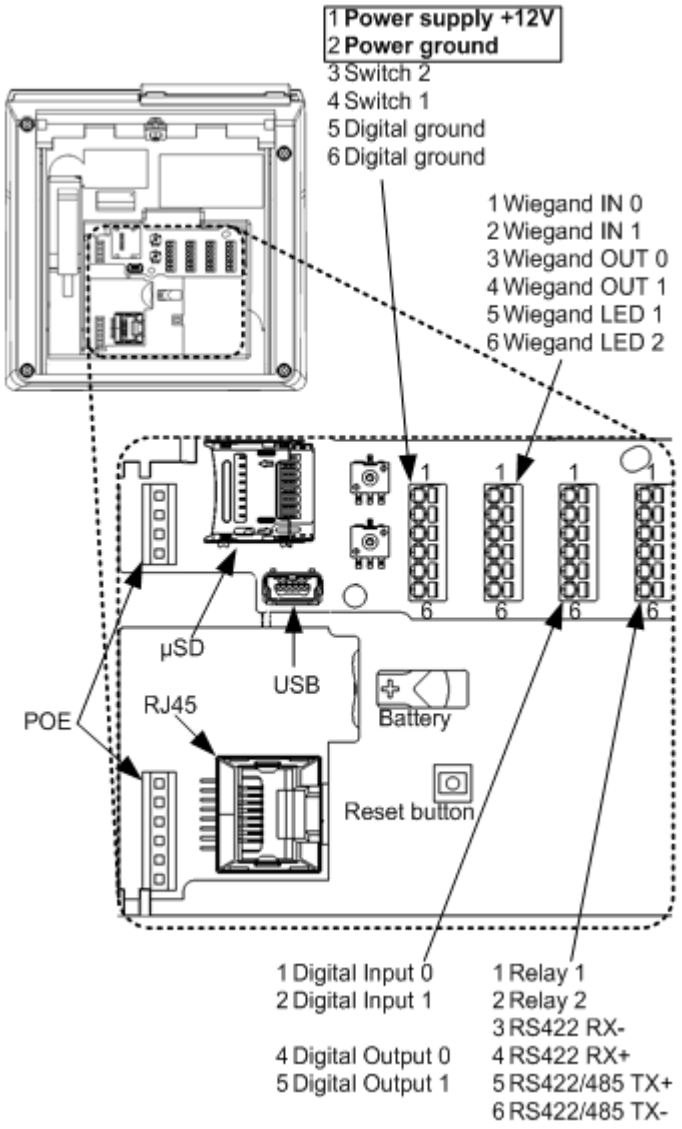
- Junction box provided as part of tower
- Junction box is hardwired to AC mains by contractor



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MORPHOWAVE WIRING OVERVIEW



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 MorphoWave OEM Wave.

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

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.

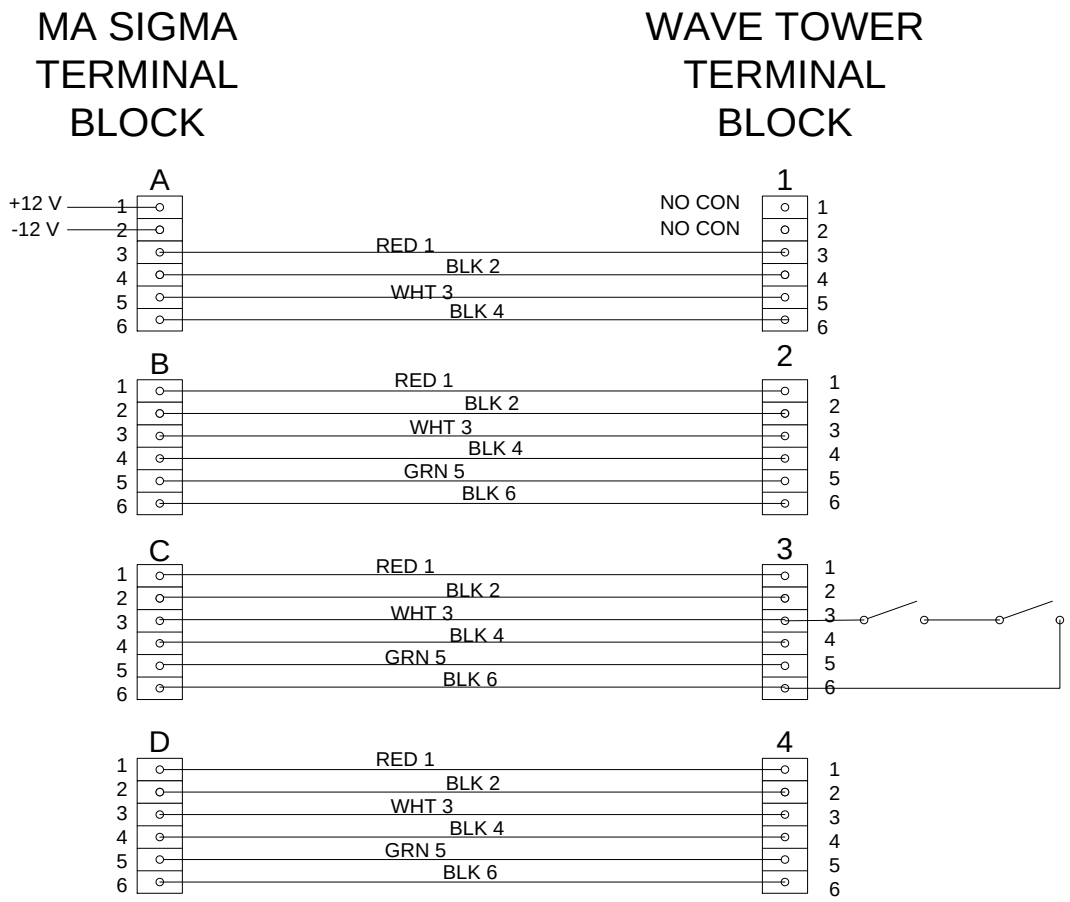
Wiegand Input and Output for connecting to host systems and controller. Electrical interface conforms to the Security Industry Association's Wiegand standard March 1995, and it is 5V TTL compatible.

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TERMINAL BLOCK CONNECTION

➔ Sub-terminal block connection

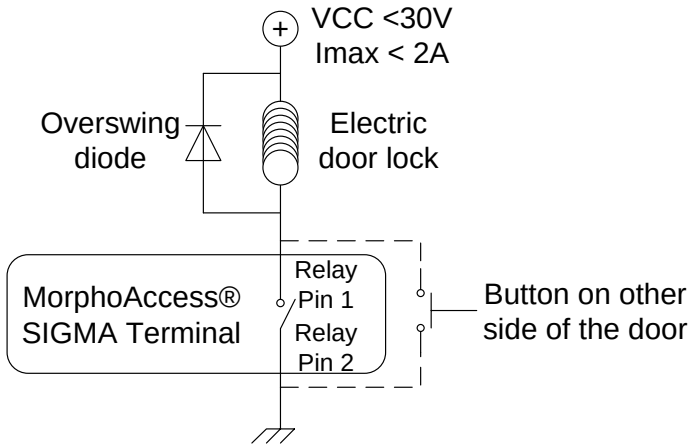


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MORPHOWAVE WIRING DETAILS

Output Relay:



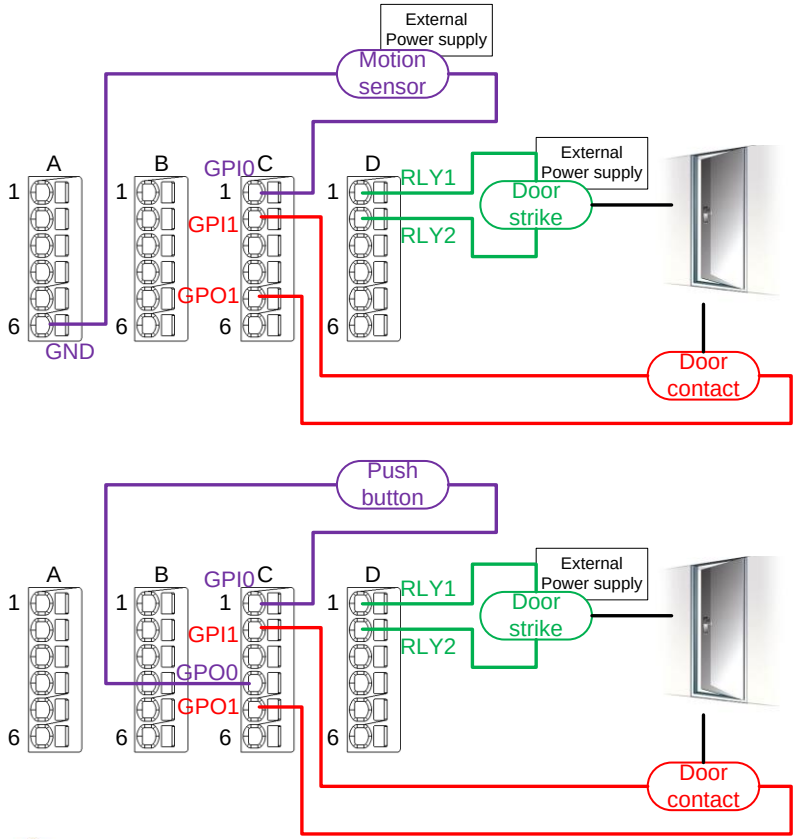
Inductive load management requires a parallel diode for a better contact lifetime.

Battery:

The battery shall be inserted in the dedicated slot in order to keep date and time when power is accidentally switched 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.

Single Door Access Control (SDAC):



If door contact is not used, GPI1 and GPO1 shall be connected together

Before any installation, please refer to the MorphoWave OEM® Series Installation Guide (Electrical Interface section).

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PC & ETHERNET SWITCH WIRING

PC





- Connect the Finger on the Fly USB 3.0 connector on a rear USB 3.0 port of the PC (blue cable, on PC side the middle plastic part is blue).
- Connect the power adaptor of the PC to the unit.
- Connect RJ45 cable on the PC for Ethernet connectivity.

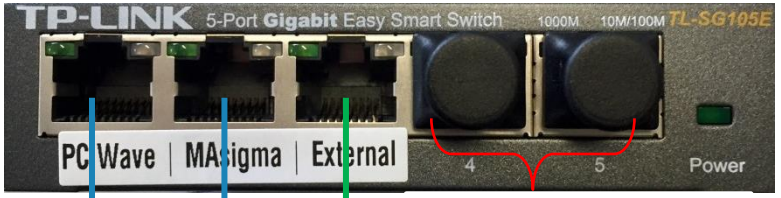
Ethernet switch

Rear side



Connect power supply adaptor provided with the switch.

Front side



Reserved, do not use

RJ45 RJ45 RJ45





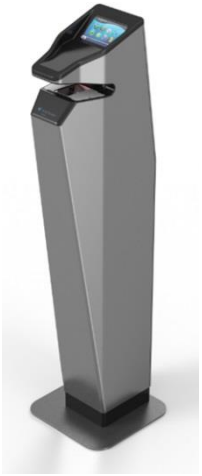
To facility network

Please use only the power adaptor provided with the PC and Ethernet switch to power up the units.

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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: One user must be enrolled in the terminal database, in order to be able to perform biometric check.

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ACCESS CONTROL MODES

Identification Mode

- It is mandatory to enabled "Biometric Trigger Event"
- Access Request initiated by waving an hand on the Finger on the Fly biometric sensor
- Terminal search for fingerprints of user in local database
- Access Granted on match found
- Access denied on no match found

Authentication Mode

- Access request can be triggered by 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

Proxy Mode

- In Proxy mode, the access control is performed remotely by the Host System
- Identification event is triggered by distant command
- On presenting hand, the terminal will send result to host system (identified successfully or failed)
- Host system will trigger access granted or failed through distant command

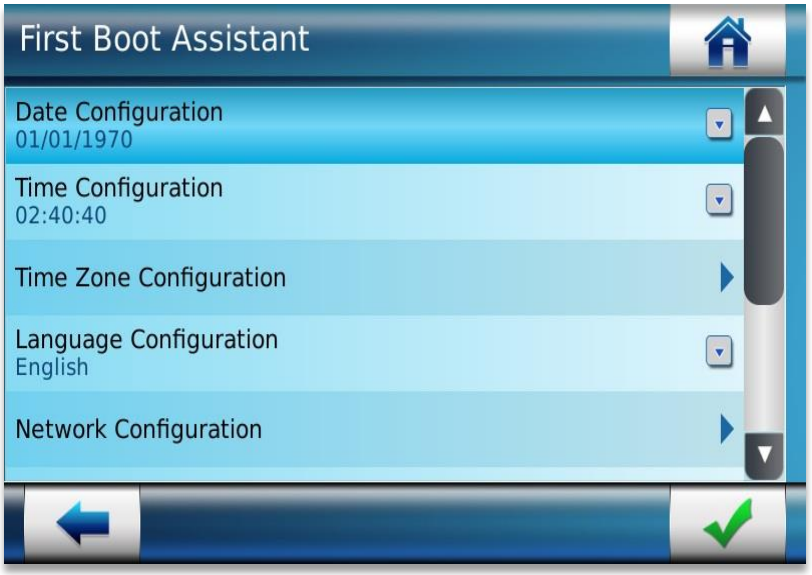
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FIRST BOOT ASSISTANT

First Boot Assistant (FBA) is launched as soon as the MorphoWave tower is up and running for the first time. 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 installed in the terminal beforehand. This 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 several languages, i.e. English, French and Spanish, are available.
3. **Trigger Event:** Activate trigger events such as Biometric, Keypad or External Port. The access rights check process is initiated when one of this event occurs.
4. **Network Configuration:** allows you to configure Ethernet parameters such as IP mode, 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. **Password Configuration:** using this parameter you can change default password, i.e. 12345, to a new password for login to the device.
7. **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.



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ENROLMENT PROCESS (2/2)

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 fingerprint is captured using biometric sensor and user's data, including biometric data, is stored. The biometric check is done by matching fingerprints by the ones stored in terminal database.

Using administration menu of MorphoWave tower, user enrolment can be performed :

- In Terminal Database

Enrolment requires gathering the data listed below:

- 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
- Selection of access schedule and holiday schedule
- Dynamic message configuration
- Set expiry date
- Select white list, VIP list user
- User specific rules definition

MorphoWave allows you to capture up to 8 fingers per user.

Note: Refer to User Enrolment section in MorphoWave OEM® Series Administration Guide .

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ENROLMENT PROCESS (2/2)

1



The operator has to choose the hand to enroll. Up to 4 fingers per hand can be selected for enrollment.
Thumbs are not available for enrollment.

2



Nb : To complete enrollment, two waves are required.

3



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MORPHOWAVE ACQUISITION GUIDELINES (1/2)

Ideal acquisition procedure



1. **Insert your hand flat, palm down, from the front of the scanner**



2. **Slightly spread apart your fingers**



3. **Place your hand between the cover and the optical sensor**



4. **Position your fingertips according to the marking on the left/right side of the acquisition area**



5. **Slide your hand from right to left or left to right**

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MORPHOWAVE ACQUISITION GUIDELINES (2/2)

Improper use



1. Do not place your hand upside down



2. Do not cross your fingers



3. Do not place your hand with fingers spread wide



4. Do not place your fingers tightly together



5. Do not place 2 hands inside



6. Do not place your hand on the cover



7. Do not touch the cover



8. Do not place your hand on the optical sensor



9. Do not place your hand on the edge of the optical sensor



10. Do not place your hand too far up on the optical sensor



11. Do not tilt your hand (left to right or fingertip to palm)”



12. Do not insert your hand fingers first from either the left or right side of the scanner



13. Do not swipe your hand too fast

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VIDEO PHONE FEATURE

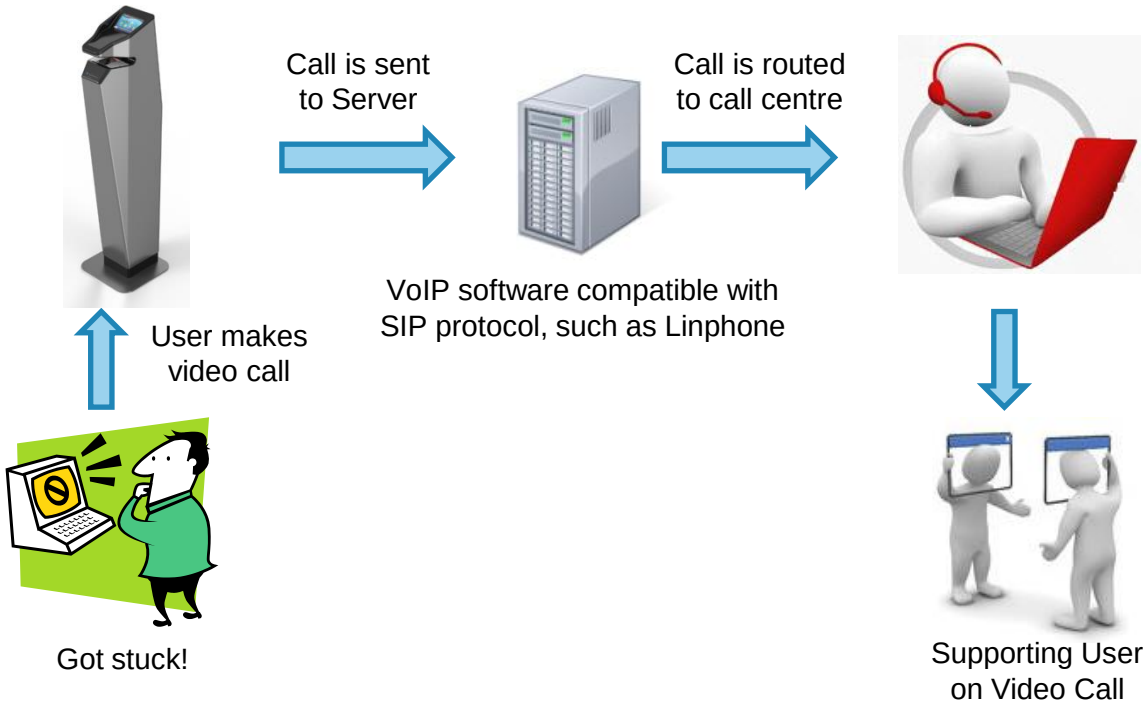
MorphoWave tower is equipped with Videophone feature that is capable of making a video call to computer based software. This feature is useful for end users to connect with a customer care centre for resolving any queries.

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, using SIP protocol for VoIP

See below call flow when video phone call is initiated:



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DOCUMENTATION

Documents about installing the terminal

MorphoWave Tower® Installation Guide
This document describes tower physical mounting procedure, electrical interfaces and connection procedures.

MorphoWave OEM® Installation Guide, Ref. 2015_2000009096
This document describes terminal physical mounting procedure, electrical interfaces and connection procedures.

Documents about administrating / using the terminal

MorphoWave Tower® Quick User Guide
This document gives a quick overview of the MorphoWave tower product and the basics of configuration and use.

MorphoWave OEM® Quick User Guide, Ref. 2015_2000009095
This document gives a quick overview of the product and the basics of configuration and use.

MorphoAccess® Sigma Series Administration Guide, Ref. 2014_0000002196
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.

MorphoAccess® Sigma Series Parameters Guide, Ref. 2014_0000000454
This document contains the full description of all the terminal configuration parameters.

Documents for the developer

MorphoAccess® Sigma Series Host System Interface Specification, Ref. SSE-0000101112
This document describes the commands supported by the MorphoWave OEM® terminal.

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

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…

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CONTACT

Biometric Access Control and Time & Attendance (Morpho)

Purchase Order and Account Support

- bats.orders@morpho.com

Sales Support and Pre-Sales Tech Support

- **Phone: Toll-Free +1 800-444-0496**

Customer Support

- **Phone: Toll-Free +1 888-940-7477**
  Direct: +1 714-575-2973
- **Email:** cscenter@morpho.com

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