<table>
<thead>
<tr>
<th>Step</th>
<th>Topic</th>
<th>Page</th>
</tr>
</thead>
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<tr>
<td>Step One</td>
<td>Overview</td>
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</tr>
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<td>Step Two</td>
<td>Wiring</td>
<td>4</td>
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<td>Step Three</td>
<td>Communication</td>
<td>8</td>
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<td>13</td>
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<td>Step Six</td>
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<td>17</td>
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<td>Step Seven</td>
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<td>22</td>
</tr>
</tbody>
</table>
Morpho 3D Face Reader™ Overview

1. Projector
2. Color Camera
3. Black & White Camera
4. 4” TFT LCD Screen with Resistive Touch Panel
5. USB Port (Bottom)
6. Power Input
7. Ethernet & PoE
8. I/O Port (Wiegand & RS-485/232) 28 Pin Connector
9. Cooler Fan
10. Heat Sink
11. Tamper

NOTE: Product images are not to scale.
# Morpho 3D Face Reader™ Checklist

<table>
<thead>
<tr>
<th>QTY</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Morpho 3D Face Reader™</td>
</tr>
<tr>
<td>1</td>
<td>External 2-pin or 3-pin power cable</td>
</tr>
<tr>
<td>1</td>
<td>External 28-pin signal cable</td>
</tr>
<tr>
<td>1</td>
<td>Micro-USB device cable</td>
</tr>
<tr>
<td>1</td>
<td>Installation CD</td>
</tr>
<tr>
<td>1</td>
<td>Installation Guide (on Installation CD)</td>
</tr>
<tr>
<td>1</td>
<td>Operator’s Manual (on Installation CD)</td>
</tr>
<tr>
<td>1</td>
<td>Quick Start Guide (on Installation CD)</td>
</tr>
<tr>
<td></td>
<td>and printed copy in package</td>
</tr>
<tr>
<td>1</td>
<td>1/8” pin-in-hex security key 2.5”</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>QTY</th>
<th>ITEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Micro-USB PC cable</td>
</tr>
<tr>
<td>1</td>
<td>DC &amp; I/O lines ferrite core</td>
</tr>
<tr>
<td>6</td>
<td>#4-8 1” nylon wall anchors</td>
</tr>
<tr>
<td>6</td>
<td>#6-32 3/4” Philips pan-head screws</td>
</tr>
<tr>
<td>6</td>
<td>#6 1” Philips pan-head self-tapping screws</td>
</tr>
<tr>
<td>29</td>
<td>Crimp connectors, B Wire (RoHS)</td>
</tr>
<tr>
<td>1</td>
<td>Wall mounting plate</td>
</tr>
<tr>
<td>2</td>
<td>6-32 security screw, pin-in hex, 3/8”</td>
</tr>
<tr>
<td>2</td>
<td>0.013” ID, 3/8” OD, 1/32” thick,</td>
</tr>
<tr>
<td></td>
<td>fiber washers</td>
</tr>
</tbody>
</table>

**NOTE:** Electronic documentation is provided in Adobe® Acrobat® format (PDF). Adobe® Acrobat® Reader is available on the Installation CD or at http://www.adobe.com
Ideal Deployment Environments

**Indoor Solutions**

These versatile solutions are perfect for indoor environments where restricted access to specific areas is required such as, in corporate environments where employee time and attendance is a key factor in managing the workforce, or in labs where access to clean rooms is restricted. Our full featured solutions unleash a combination of power, usability and more. Operating temperature is +41°F to +113°F (+5°C to +45°C).
There are five communication types that can be used by the device:

8. RS-485  5. USB
8. RS-232  7. Ethernet
8. Wiegand

(Refer to Page 1)

**RS-485**

- Use CAT-5 UTP (or better) cable (shielded recommended) with a characteristic impedance of 120 ohms.

- AWG 24 should be the minimum wire gauge used.

- Choose an Morpho approved RS-232 to RS-485 converter that supports Sense Data to switch from Send to Receive mode. B&B Electronics model # 485TBLED RS-232/RS-485 converter is recommended.
RS-232 PC Communication
Use CAT-5 UTP (or better) cable (shielded recommended). Cable should be run in a direct (homerun) connection from the unit to the PC’s DB9 COM port.

Ethernet
Ethernet connection to the device is made through a standard RJ-45 connector on the back of the device. Use CAT-5 UTP (or better) cable.

USB
Standard cable with Micro AB plug to A plug (USB on the Go) is used.

Wiegand Output to Access Control Panel (ACP)
- For 18 AWG, the maximum cable distance is 500 ft. (150m); for 20 AWG, the maximum is 300 ft. (90m); for 22 AWG, the maximum is 200 ft. (60m).
- Three-conductor wire (shielded recommended) is required for Data 0, Data 1, and WGND.*

Power
For most installations, use 18-22 AWG cable. Remember to calculate line-loss when selecting cable.

IMPORTANT: Refer to local electrical codes and standards before selecting a cable type.

* Morpho always recommends the use of Wiegand ground
# 28-Pin Signal Connector

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>RS485A</td>
<td>Blue</td>
</tr>
<tr>
<td>3</td>
<td>RS485B</td>
<td>Blue/Black</td>
</tr>
<tr>
<td>5</td>
<td>SGND</td>
<td>Black/Red</td>
</tr>
<tr>
<td>7</td>
<td>WIEGAND_LED_IN0</td>
<td>Grey/Black</td>
</tr>
<tr>
<td>9</td>
<td>Not Connected</td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>WIEGAND_LED_OUT0</td>
<td>Brown/Green</td>
</tr>
<tr>
<td>13</td>
<td>WIEGAND_LED_OUT1</td>
<td>Brown/Black</td>
</tr>
<tr>
<td>15</td>
<td>TTLOUT_0H</td>
<td>White/Brown</td>
</tr>
<tr>
<td>17</td>
<td>TTLOUT_0L</td>
<td>White/Red</td>
</tr>
<tr>
<td>19</td>
<td>TTLOUT_1H</td>
<td>Brown/White</td>
</tr>
<tr>
<td>21</td>
<td>TTLOUT_1L</td>
<td>Yellow/Black</td>
</tr>
<tr>
<td>23</td>
<td>TTLOUT_2H</td>
<td>Grey/Orange</td>
</tr>
<tr>
<td>25</td>
<td>TTLOUT_2L</td>
<td>White/Orange</td>
</tr>
<tr>
<td>27</td>
<td>RELAY_NO</td>
<td>Yellow</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Pin No.</th>
<th>Function</th>
<th>Color</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>RS232_RX</td>
<td>Violet/White</td>
</tr>
<tr>
<td>4</td>
<td>RS232_TX</td>
<td>Violet</td>
</tr>
<tr>
<td>6</td>
<td>SGND</td>
<td>Black/Red</td>
</tr>
<tr>
<td>8</td>
<td>WIEGAND_DIN0</td>
<td>Green/White</td>
</tr>
<tr>
<td>10</td>
<td>WIEGAND_DIN1</td>
<td>White/Black</td>
</tr>
<tr>
<td>12</td>
<td>WIEGAND_DOUT0</td>
<td>Green</td>
</tr>
<tr>
<td>14</td>
<td>WIEGAND_DOUT1</td>
<td>White</td>
</tr>
<tr>
<td>16</td>
<td>WGND</td>
<td>Black/White</td>
</tr>
<tr>
<td>18</td>
<td>TTLIN0</td>
<td>Yellow/Blue</td>
</tr>
<tr>
<td>20</td>
<td>TTLIN1</td>
<td>Blue/Brown</td>
</tr>
<tr>
<td>22</td>
<td>TTLIN2</td>
<td>Brown/Violet</td>
</tr>
<tr>
<td>24</td>
<td>TTLGND</td>
<td>Green/Brown</td>
</tr>
<tr>
<td>26</td>
<td>RELAY_NC</td>
<td>Orange</td>
</tr>
<tr>
<td>28</td>
<td>RELAY_COM</td>
<td>Grey</td>
</tr>
</tbody>
</table>

* Colour codes are different from pervious product series
Power

Power Supply
Use an external power supply that provides a voltage between 12V to 24V and a minimum of 2A at 12VDC per device. The power supply should be regulated, filtered, and dedicated to Morpho products only. If sharing power between devices, be sure that each unit receives 1A (e.g. two units would require a 12VDC, 2A supply).

A battery backup or uninterruptible power supply (UPS) with built-in surge protection is recommended.

Power Over Ethernet (PoE)
When the device is powered over Ethernet, an IEEE 802.3af compliant Active Midspan Injector must be used. This injector is not supplied with Morpho products.

PoE Injector Specs
- Input Voltage: 90-264 VAC, 60 Hz
- Input Current: 0.4A @ 100VAC
- Output Voltage: -48VDC
- Output Current: 0.25A
- Power: 12W

WARNING: Under powering may cause memory and data corruption; over powering may cause hardware damage. Both of these situations will void the warranty.
When the device is connected to a PC workstation for the first time, a *Found New Hardware* message will be displayed.

The Hardware Installation Wizard prompts you to connect to the internet to search for a driver.

Select *Not at this time > Next*. Then choose *Install the driver automatically*.

**NOTE:** The driver will not install properly unless SecureAdmin™ has been installed first.

When the driver installation is complete, right-click on the *My Computer* icon and select *Manage > Device Manager*.

Under *Ports* (COM and LPT) you will find the port number associated with your Gadget Serial (e.g. COM3).*

**IMPORTANT:** When registering your product in SecureAdmin™ use this port number.
For RS-485 installations, the cable should be run in a daisy-chain configuration (i.e. converter > position 1 > position 2 > position 3, etc.).

Choose one twisted pair of conductors to use for RS-485 TDA (Blue/Black wire - Pin 3 of 28) and RS-485 TDB (Blue wire - Pin 1 of 28). Another conductor should be used for Signal Ground.

**NOTE:** When installing a unit on a network with both legacy and new products, the new software will not detect the older product(s). In these mixed installations, both VeriAdmin™ and SecureAdmin™ must be used.

**IMPORTANT:** A maximum of 31 devices may be installed on the same line. The maximum total cable length is 4000 ft. (1200m). The cable must be dedicated to this installation and not used for any other purpose.
RS-232

For RS-232 installations, a female DB9 connector should be used on the cable.

Connect **RS232_TX** (Violet wire – Pin 4 of 28) to the DB9F Pin 2.

Connect **RS232_RX** (Violet/White wire – Pin 2 of 28) to the DB9F Pin 3.

Connect the **Signal Ground** (Black/Red wire – Pin 6 of 28) to the DB9F Pin 5.

**IMPORTANT:** Only one device can be installed in an RS-232 configuration and the maximum cable length is 150 ft. (45m). If the maximum cable length is used, the initial baud-rate must be set to 9600 Bd. If a shorter cable is used, you may try setting a higher baud-rate.
4G devices by default are DHCP enabled.

**NOTE:** SecureAdmin software supports restricted IP address for improved security. This feature allows you to specify which IP addresses are allowed to communicate with the device.
Wiegand Communication

Use 18-22 AWG cable (shielded cable is recommended) in a homerun configuration from each unit to the ACP.

Connect WIEGAND\_DOUT0 (Green wire – Pin 12 of 28) to ACP Data 0.

Connect WIEGAND\_DOUT1 (White wire – Pin 14 of 28) to ACP Data 1.

Connect WGND (Black/White wire – Pin 16 of 28) to ACP reader common (0VDC).

**Example Format Information**

- **Type:** Standard 26-bit
- **Alt Site Code and Fail Site Code Range:** 0-255
- **Template ID Number Range:** 1-65535
- **Extended ID Number Range:** N/A
- **ID Start Bit:** 9
- **Length of ID:** 16
- **Site Code Start bit:** 1
- **Length of Site Code:** 8
- **Start Bit:** 0

**IMPORTANT:** By default, the Wiegand output format is not enabled. Wiegand output must be configured before connecting to the ACP. For more information, refer to Section 5 of the Operator’s Manual.

**NOTE:** On installation, the system administrator will be prompted to select either a pre-existing Wiegand file format or create a custom format, and upload it to the unit before the first use. To configure a 4G unit to send an alternate Site Code, a custom Wiegand format must be created.
Connection to the ACP

1. Wiegand Lines
   - WIEGAND_DOUT0 - Green Wire
   - WIEGAND_DOUT1 - White Wire
   - WGND - Black/White Wire

2. Communication between 4G devices and SecureAdmin Ethernet or RS-485

NOTE: ACP = Access Control Panel
The **Morpho 3D Face Reader™** incorporates an internal relay that enables them to operate a deadbolt/door strike directly.

**Example Install**

**WARNING:** The internal relay is limited to a maximum current of 170mA. If the deadbolt/doorstrike draws more than 170mA, damage to the device may occur. If the deadbolt/doorstrike load exceeds 170mA, an external relay must be used.
Single Door Access Controller (continued)

Connections for Internal Relay Operation

Connections for External Relay Operation

NOTE: Inverted 28 PIN connector
Front Panel Access to Morpho 3D Face Reader™

1. Unlock LCD
2. Verify ID
3. System
4. Information
5. Security
6. Communication
7. Multimedia
8. Template

To Navigate to the Login Screen, tap the Unlock Icon on LCD.

The default password to the Morpho 3D Face Reader™ is 0000.

It is recommended that you change the default password.
SecureAdmin™ Requirements

PC Workstation
- **1-10 Terminal Installation**
  - Minimum 1GHz Intel® Pentium® 4 or equivalent
  - 1 GB RAM (2 GB recommended)
- **11-100 Terminal Installation**
  - One Quad-Core Processor or equivalent
  - Memory 8-16 GB RAM
  - CD-ROM drive
  - One available USB port
  - Ethernet or COM port
  - 1024 X 768 high color video display

SecureAdmin™ Server
- 25 MB hard disk space minimum

Operating Systems Supported
- Windows Server® 2003 R2
- Windows Server® 2008
- Windows Vista™
- Windows XP Service Pack 2 or higher
- Window 7 32-Bit and 64-Bit

SecureAdmin™ Client
- 10 MB hard disk space minimum

SQL Server™ 2008 Express Edition
- Minimum of 512 MB of RAM (1 GB or more recommended)
- 1.9GB of free hard disk space

Oracle® 10G Express
- 1.6 GB hard disk space for server
- 75 MB hard disk space for client

Additional Components
- Microsoft® .NET Framework 3.5 requires 500 MB of hard disk space
SecureAdmin™ Installation

To install the SecureAdmin™ (Client and Server) software, the user must have administrative rights. The software required to install SecureAdmin™ is detected and installed automatically during the setup process.

SecureAdmin™ software is installed by clicking the appropriate buttons on the Install Menu screen.

**IMPORTANT:** The client(s) will not run without the server. While you can have multiple SecureAdmin™ Clients in your installation, only one SecureAdmin™ Server is needed. Make sure that each client in your installation is directed to the target server. If this is a new installation, make sure you install SecureAdmin™ Server first.
SecureAdmin™ Login

The SecureAdmin™ Username and Password are created at the time of installation. They make up the user identification required to log in to the database.

SecureAdmin™ Server identifies the machine on which the database is installed.

The machine’s IP address can be used as the SecureAdmin™ Server name. If the server and client are installed on the same machine, localhost can be used as the SecureAdmin™ Server name.

NOTE: Password must be between 6 to 20 characters long and must contain at least one letter, one number or special character.
1. Click the Register via Server button. The Register via Server dialog box will display.

2. For Ethernet, select the Search Automatically check box. For USB/COM port, select the appropriate port number.

3. Click the Scan button SecureAdmin™ will scan the network for installed devices and display a list.

4. In the list, click the icon of the device you want to register. The Register Device dialog box will display.

5. Click Register. The Device Summary dialog box will display.
SecureAdmin™ Enrollment

New user is entered into the database through the process of “Enrollment”. During this process, as user’s face is scanned and a face-scan template is generated.

To enroll a user, click on **Face Enrollment** button and follow the directions displayed in the **Enrollment Wizard**.

**NOTE:** For more information, refer to Section 3 of the Operator’s Manual.
Enrollment Basics

Operating Morpho 3D Face Reader™ is simple if a few basic guidelines are followed consistently. Use the following recommendations to ensure trouble-free face-scan recognitions:

The Morpho 3D Face Reader™ is mounted on a tripod vertically so that the height range would be suitable for a person. Enrollment needs to be performed at the 850-950 mm distance, 900 mm optimally.

NOTE: While Morpho encourages capturing the core, users must maintain a natural presentation that they can consistently repeat each time during verification.
Technical Support and hotline  
Morpho  
hotline-biometrics@morpho.com  

4G SERIAL NUMBER  

Please reference this number for product validation and warranty support.  

SERIAL NUMBER INFORMATION  

VV XXX YY WW ZZZZ  
VV = PRODUCT FAMILY  
XXX = PRODUCT REFERENCE  
YY = YEAR OF MANUFACTURE  
WW = WEEK OF MANUFACTURE  
ZZZZ = SERIAL NUMBER