BundyPlus™

midnight
technologies pty ltd

G6 Employee Biometric Registration and Sensor Maintenance

DOCUMENT NO: ISSUE 1. 5

PREPARED BY:	Mike Whyte	DATE: Tuesday, 25 August 2015
CHECKED BY:	Russell Hurdle	DATE: Tuesday, 25 August 2015
APPROVED BY:	Steve Jordan	DATE:

ISSUE	DATE	DCR	REMARKS/PAGES AFFECTED
1	2010-02-08		Initial Release
2	2010-07-23		Updated
3	2010-07-31		Updated
4	2010-08-13		Updated
5	2015-08-21		Updated

TABLE OF CONTENTS

1   INTRODUCTION

1.1 What does the G6 biometric clock look like ?

This picture shows the G6 biometric time clock in beige & grey.

1.2 Document Purpose

This document specifies the process of registering the employee finger scan to the employee number into the G6 Bio time clock. This process is achieved by entering a configuration mode in the G6 and following the prompts on the LCD. This document lists the procedures for the Lumidigm biometric sensor. If you have the Bioscrypt / Morpho style biometric sensor then you should reference the "G6 Biometric Registration and Sensor Maintenance v1.4.pdf" document. There are many similarities between the registration process for both sensors.

1.3 Lumidigm sensor advantage

Lumidigm multispectral fingerprint sensors unleash the subsurface fingerprint to increase biometric performance and make your application more secure and reliable. The Lumidigm sensor returns superior images on anyone, anytime, in any environment.

- Eliminates failure to enrol and failure to acquire headaches
- The industry's best fingerprint images
- Protects against fake and spoof fingerprints
- Enables high throughput
- Maintains performance in different environments
- Requires minimal maintenance
- Dramatically reduces cost of system ownership and accelerates return on investment

Image quality

The accuracy and reliability of any fingerprint biometric is dependent on the image quality of the print itself. Lumidigm's patented multispectral imaging system uses multiple wavelengths of light to capture an image of both a person's external fingerprint and their identical "internal fingerprint" — the foundational capillary bed. Even if the external print is damaged or obscured, multispectral imaging uses the internal print data to ensure clear, clean images of anyone in any environment. Good images enable good biometric performance, which lowers the overall lifetime costs of system ownership by reducing management oversight, workarounds and frustrated users.

Performance

Lumidigm fingerprint sensors enhance the throughput and accuracy of any application. High-quality images are captured by multispectral sensors even when fingerprint ridges are hard to distinguish due to genetics, age, dirt, finger placement, or environmental conditions. Lumidigm sensors can easily enrol and verify ALL people — including that 2-5% of the population with "problem fingerprints" that fail to enrol on conventional sensors. The Lumidigm advantage increases return on investment and user satisfaction by eliminating these enrolment problems.

Liveness detection

Lumidigm provides the biometric industry's best liveness detection technology to protect against fake and spoof fingerprints. Only Lumidigm continually enhances its detection capability and provides spoof updates to contain risk and help future-proof your investment. Lumidigm is committed to providing the most secure sensors available.
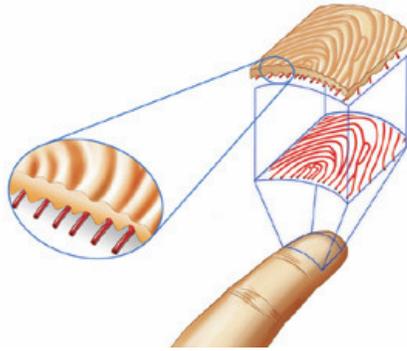
1.4 Document Referencing

This document will reference other documents without the document version.

2 IDENTIFICATION OR VERIFICATION CLOCKING MODE

The BundyPlus G6 time clock with the Lumidigm biometric sensor now supports both "Identification" and "Verification" modes. Please see "G6 Configuration v1.9.pdf" document to change these modes. By default – the BundyPlus G6 time clock is shipped with Identification mode (authenticated) selected.

2.1 Identification (authenticated)

In this mode (default) the employee places their finger onto the sensor – the time clock scans the finger and then searches through the biometric templates to find a match based only on the finger scan. If the employee is found – it will display the employee number or the employee name (if the employee names have been loaded) and ask the employee to confirm that this is the correct employee. The employee answers "Yes" or "No" by pressing any key in the column under the Yes or No prompt. If you intend to use Identification mode we would recommend that you use the authenticated mode as it ensures that the correct employee is recorded.

2.2 Identification (un-authenticated)

In this mode the employee places their finger onto the sensor – the time clock scans the finger and then searches through the biometric templates to find a match based only on the finger scan. If the employee is found – it will display the employee number or the employee name (if the employee names have been loaded) and then save this as the clocking. This mode then assumes that the correct employee has been found based only by the biometric scan. We do not recommend this mode for use as it has a higher possibility of identifying the wrong employee.

2.3   Verification

In this mode the employee enters their employee number on the keypad of the time clock, press enter. The clock will then display the employee number or employee name (if the employee names have been loaded) and then prompt the employee to place their finger on the biometric sensor. The time clock will then compare the pre-registered biometric template against the live biometric scan. If the two match then the clocking will be recorded. If the scan does not match then the employee will be prompted to re-scan their finger. Verification mode is a much more reliable mode of scanning as the live biometric scan is only compared against the individual pre-registered biometric template.

3   ENTERING "BIOMETRIC MANAGEMENT" MODE

3.1   How do I get into the "Biometric management code" on the time clock

Biometric management menu – enrol employees etc.

To enter this mode, simply enter via the keypad "99998DDMM" where:

DD is the time clocks day e.g. 07 for 7th December
MM is the time clocks month e.g. 12 for December

Example #1: "999980712" then ENTER if the time clock is showing a date of 7th December. The clock will immediately change in to Biometric management mode.

Example #2: "999982308" then ENTER if the time clock is showing a date of 23rd August. The clock will immediately change in to Biometric management mode.

It is possible to remotely change the code (as above) used to enter the Biometric Management mode – This is done through the ClockComms application. See the ClockComms manual for instructions. You would only change this code if you think someone is interfering with settings and registrations in the time clock.

3.2 Navigating the time clock menus

Once you have entered the management mode on the time clock, use the keypad to navigate the menu icons. Left (4) /right (6) moves the menu between main categories and up (2) /down (8) moves menu between each sub category. To formularise yourself with the headings, freely scroll left and right to view heading names.
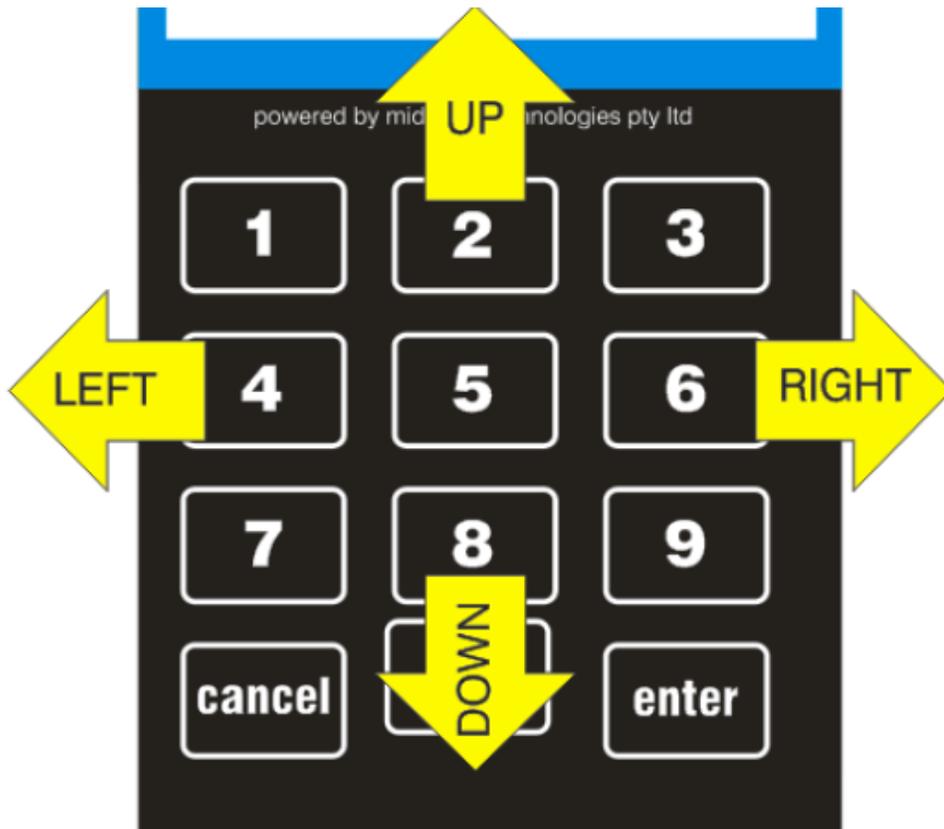
3.3   Time clock Biometric management mode menu

As soon as you enter the Biometric management Menu you will be prompted to enter the enroller ID, all biometric registrations are audited to a specific enroller.

The Menu only has one main classification which is listed as 1, so the [4 key] – which MOVES to the LEFT, and the [6 key] – which MOVES to the RIGHT are not needed in this menu. Only the [2 key] – which MOVES up the menu and the [8 key] – which MOVES down the menu are used.

1.1   Enrol a Users finger print

This is used to enrol employees into the G6 biometric time clock.

1.2   Verify a Users ID (Finger Print)

This menu is used to verify the employee against their current biometric scan.

1.3   Delete a Users finger print

This menu is used to delete an employee from a specific time clock.

1.4   Set User Account Type (Admin/User)

This menu is used to assign user account types to each employee.

- Standard User (Authenticated) – This is the default
- Administrator (Enroller) - Clocking will force the clock in to Registration mode.
- Special User (un-authenticated) - Enter the employee number then enter no finger placement will be required.

1.5   Set a users security PIN

This menu is used to assign a PIN to a users account.

1.6   Reset a users security PIN

This menu is used to reset an employee's users account with a new PIN. Enter the employee number and press enter, the time clock will prompt "Reset User PIN?" – if you answer yes by pressing enter the time clock will reset the employee user account. After this process has been complete the employee can try again to clock in/out again, they will be prompted on the first clocking to enter their new security PIN twice (once for validation). **Note:** This will only work on employee templates that have previously been registered as special users with a PIN.

1.7   Delete a Users security PIN

This menu is used to delete a previously assigned PIN to a users account.

1.8   Template utilisation

This menu will display the number of bio templates used by the time clock, maximum number of templates available at any time clock is 1,000.

4   HOW TO ENROL AN EMPLOYEE

4.1   What fingers to use?

The **best fingers** to use are the "**index**" and "**middle**" finger, either left or right hand. Both these fingers have the most reliable quality and content.

Note: the sensor is looking for the swirl of the finger, get the user to choose one or two of these fingers for enrolment.

Avoid using the "**thumb**" as the swirl of the fingerprint is typically lower down the thumb, also avoid the "**ring finger"** and "**little finger**" or "**pinky**". The thumb can be used if you cannot achieve an acceptable scan on either the index or middle finger, just be sure that the employee places the their thumb on the sensor pad with the swirl as centred as possible.

4.2   Correct finger placement

The basics for successful operation of the Biometric sensor are simple but important. System performance improves dramatically with ***consistent finger placement.***

The Finger Guide creates a "simple user instruction" and "consistent" finger position. With the fingertip not touching the sensor, position the finger so that the finger sits nicely on top of the sensor in the finger guide.

Lower your finger onto the sensor applying moderate pressure.

You should familiarise yourself by practicing the correct finger placement, once registered you can use menu item 1.2 "Verify a users ID (Finger print).

4.3   Enrol an Employee - Biometric

The process of enrolling an employee is the same regardless of the clocking mode you have selected. The clock will ask you to place your finger on the sensor three times. The clock then averages the scans across the three reads to create one biometric template. The clock will prompt you during the process – please pay attention to the screen of the time clock.

Once you are in the enrolment menu of the time clock, press enter on the first option 1.1 "Enrol a Users finger print".

The time clock will prompt you to "Please enter Users ID#"

Enter the employee card number via the keypad and press enter. The time clock will display the employee name (if present locally) for a few seconds and you will then be prompted to place your finger on the sensor. Place your finger on the sensor with a nice / firm pressure.

Once the finger has been scanned you will be prompted to remove your finger.

The time clock will process the scan and then ask you to place the same finger on the sensor again.

This process will be repeated until the clock has three successful scans of the same finger.

When this process has been completed successfully the clock will display "Perfect your now enrolled" .

If the process failed the clock will display "Sorry your attempt to enroll failed !!" - you will need to acknowledge this by pressing any key. In this case the employee has not been enrolled / registered successfully and you will need to repeat the procedure until you get a successful result.

Once completed – the employee has been enrolled / registered. The employee will be able to clock in and out. If you are using our BundyPlus product – ensure that the employees name and assigned card number have been entered in to the software before you attempt to download clockings.

4.4   Enrol an Employee with PIN verification

There are two ways in the Biometric registration menu to register an employee with PIN verification.

- Follow the process above and at the point of putting your finger on the sensor press the cancel key. You will then be asked "Assign ID as Special User ? " if you press the enter key the time clock will ask you to enter a PIN, enter the PIN and press enter. The employee details along with the PIN will be saved.

- Follow the process above and after you have not been able to achieve a valid bio scan after three attempts the time clock will ask "Assign ID as Special User ? " if you press the enter key the time clock will ask you to enter a PIN, enter the PIN and press enter. The employee details along with the PIN will be saved.

5   HOW DO I RECORD A CLOCKING?

5.1   How do I clock IN / OUT using Bio Identification (authenticated) ?

In this mode (default) the employee places their finger onto the sensor – the time clock scans the finger and then searches through the biometric templates to find a match based only on the finger scan. If the employee is found – it will display the employee number or the employee name (if the employee names have been loaded) and ask the employee to confirm that this is the correct employee. The employee answers "Yes" or "No" by pressing any key in the column under the Yes or No prompt. If you intend to use Identification mode we would recommend that you use the authenticated mode as it ensures that the correct employee is recorded.

5.2   How do I clock IN / OUT using Bio Identification (un-authenticated)?

In this mode the employee places their finger onto the sensor – the time clock scans the finger and then searches through the biometric templates to find a match based only on the finger scan. If the employee is found – it will display the employee number or the employee name (if the employee names have been loaded) and then save this as the clocking. This mode then assumes that the correct employee has been found based only by the biometric scan. We do not recommend this mode for use as it has a higher possibility of identifying the wrong employee.

5.3   How do I clock IN / OUT using Bio verification?

In this mode the employee enters their employee number on the keypad of the time clock, press enter. The clock will then display the employee number or employee name (if the employee names have been loaded) and then prompt the employee to place their finger on the biometric sensor. The time clock will then compare the pre-registered biometric template against the live biometric scan. If the two match then the clocking will be recorded. If the scan does not match then the employee will be prompted to re-scan their finger. Verification mode is a much more reliable mode of scanning as the live biometric scan is only compared against the individual pre-registered biometric template.

5.4   How do I clock IN / OUT using PIN verification?

- Enter your employee number via the keypad and press the enter key.
- If your employee number is found - The time clock will quickly beep 6 times and will ask you to "Please enter security PIN"
- Enter your security PIN via the key pad and press enter.

If the security PIN is verified correct, the time clock will quickly beep 6 times and the transaction will be saved.

If the security PIN is verified in-correct, then the time clock will error tone twice and display "Invalid Security PIN" for a few seconds then ask you to enter the security PIN again.

6   COMMON MISTAKES

The following figures illustrate some common mistakes to avoid.

6.1   Don't slide the fingertip into place

This will cause distortion of the fingerprint and will degrade image quality.

6.2   Don't rotate the finger into place

This will also cause distortion of the fingerprint, subsequently making verification less reliable.

6.3   Don't place your finger as if punching a button

This will not provide adequate information and will degrade system performance.

6.4   Don't position the finger to one side

Leaving a portion of the sensor exposed will degrade image quality by preventing the entire core region to be captured. This figure demonstrates the two incorrect ways and the correct way to centre the finger. Placing the finger at an angle to the finger guide, as shown below, is another common mistake. Rotation of the fingertip will not provide a reliable image of the fingerprint.

6.5   Poor sampling results

Some reasons for poor sampling results are listed below: POSSIBLE REASON	CORRECTION
Finger movement while sampling	Instruct the user to remain still while the device is sampling.
Finger not positioned properly	With the fingertip not touching the sensor, position the finger so that it will sit nicely in the indentation of the sensor. Next, lower the finger onto the sensor and apply very moderate pressure.
User might be pressing too hard	Too much pressure on the sensor will blur the fingerprint ridges. Allow the user to apply moderate pressure.
User might not be pressing hard enough	You must apply moderate pressure when enrolling. The fingerprint should lay flat upon the sensor surface.
Finger too moist or wet	Dry wet or moist fingers before sampling.
Finger too dry	Excessively dry skin may affect the sample quality. Try applying skin moisturizer a few minutes before enrolling to improve image quality.

7   BIO CLEANING RECOMMENDATIONS AND GUIDELINES

7.1   Recommended G6 mounting height

The recommended mounting height of G6 time clock is 1350mm from the floor to the centre of the case. This height has been calculated based on combined optimum finger placement angle on bio-sensor to ensure reliable performance and LCD visibility.

7.2   How often should I clean the Bio Sensor?

We recommend that you clean the finger scanner sensor at least once a month.

7.3   What type of cleaner should I use?

Use any type of household kitchen or window cleaner, such as Formula 409, Windex or any generic versions of these cleaners.

We have used "Windex Surface & Glass Wipes" that are available from any supermarket, they work well and are available in a resealable pack.

7.4   What type of cleaner should I NOT use?

Do NOT use chlorine based cleaners, such as Clorox, bleach, non chlorine bleach, or chlorine-based bathroom or mildew cleaners.

Chlorine based cleaners will not necessarily affect the functionality of the finger senor, but they will discolour the finger drive ring and could damage the surrounding circuitry around the fingerprint sensor.

Do NOT use any solvents, such as acetone, MEK, TCE, paint thinner, turpentine etc. Solvents will not adversely affect the sensor, but they might damage the surrounding enclosure and peripheral components to the sensor.

7.5   Now I have the correct cleaner – how do I clean the sensor?

- Turn the clock off and remove the Electrical power.
- Wet one end of a cotton swab (not soaking or dripping wet) with one of the approved cleaners, or use one of the wipes as listed above.
- Gently rub the sensor surface and finger drive ring with the wet cotton swab or wipe, slowly rotating the swab or wipe so the new clean surface of the swab is constantly exposed to the sensor surface.
- Do not allow cleaner to drip or run down into the electronics of the sensor and clock.
- After cleaning with the damp swab or wipe gently rub the surfaces again with a dry cotton swab.
- Use a clean swab each time the sensor is cleaned - (If a dirty swab is used, it may make the sensor dirty again)