G6 Employee Biometric Registration and Sensor Maintenance

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TABLE OF CONTENTS

1 INTRODUCTION

1.1 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.

1.2 Document Referencing

This document will reference other documents without the document version.

2 ENTERING "BIOMETRIC MANAGEMENT" MODE

2.1 How do I get into the "Biometric management code" on the TCD

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

If however the **Registration Menu Key** has been set to anything other than zero "0" then only that code will work at the TCD to get into the Biometric management menu.

2.2 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.

[2 key] – MOVES up the menu

[4 key] – MOVES to the LEFT   [6 key] – MOVES to the RIGHT

[8 key] – MOVES down the menu

2.3   TCD 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 with either a Bio verification or Pin verification (see 3.1, 3.2, 3.3, 3.4)

1.2   Test Enrolment Technique

This menu allows a user to test placing their finger on the bio sensor and see what content and quality results they get. This is a very useful menu for giving people confidence on how to place their finger on the sensor.

1.3   Verify a Users ID (Finger Print)

This menu is used to verify the employee (Home cost centre only) against their current biometric scan.

1.4   Delete a Users finger print

This menu is used to delete an employee from a specific time clock – not used in DHS.

1.5   Set User Account Type (Admin/User)

This menu is used to assign user account types to each employee. This applies only for home cost centre employees. This is specifically used to assign biometric administrative rights to enrollers.

1.6   Reset User ID security PIN

This menu is used by the Help Desk to reset an employees users account that has been suspended by entering the PIN in-correctly 5 times. Enter the employee number and press enter, the TCD will prompt "Reset User PIN?" – if you answer yes by pressing enter the TCD will reset the employee user account. Help desk must exit out of the Biometric menu for the update to be processed through from the TCD to CCE.

After this process has been complete the employee can try again to clock in/out again, they will be prompted to enter their new security PIN twice (once for validation).

1.7   Set User Account Security Level

This menu is used to set the security Level of the employee (home cost centre only). This has been set to Medium level (default), this sets the level of security for template matching. The default level is appropriate for template verification.

1.8   Template utilisation

This menu will display the number of bio templates used by the TCD, maximum number of templates available at any TCD is 4,000.

3   HOW TO ENROL AN EMPLOYEE

3.1   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.

3.2   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 Ridge-Lock and the Finger Guide create a "simple user instruction" and "consistent" finger position. With the fingertip not touching the sensor, position the finger so that the Ridge-Lock rests comfortably within the first indentation of the finger.
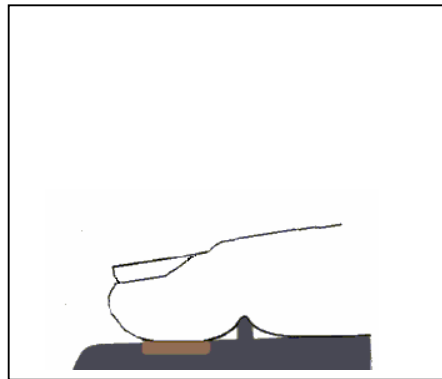
Lower your finger onto the sensor applying moderate pressure.

You should familiarise yourself by practicing the correct finger placement. This can be done in the Biometric menu of the MT300PoE option 1.2 "Test Enrolment Technique".

3.3   Enrol an Employee with Biometric verification

Once you are in the enrolment menu of the MT300PoE, enter your ID as the enroller, then select Biometric menu option 1.1 "Enrol a Users finger print" by pressing enter.

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 primary finger on the sensor. Place the primary finger on the sensor with a nice / firm pressure.

The time clock will then report the success or failure of the enrolment attempt along with the quality and content scores out of 100. You should aim to get a "Very High" score during the registration

process, however the results will vary depending on the quality of the finger being scanned, also see Common Mistakes.

Very High   Acceptable - Preferred reading
High   Acceptable
Fair   Acceptable if you cannot achieve a higher reading
Poor   Not Acceptable
Very Poor   Not Acceptable

If you have achieved an acceptable scan for the primary finger the time clock will prompt you "Enrol another finger Image".

If you choose No – then that employee will be registered with one finger template.

If you choose Yes – then the time clock will prompt you to place an alternate finger on the sensor. Please follow the previous process to achieve an acceptable scan.

Once completed – the employee has been registered. The employee will be able to clock in and out in their home cost centre or other cost centres once the finger image has been uploaded to the DHS server, this process is automatic. If the employee cannot achieve an acceptable finger scan or the employee has elected to use a PIN as a form of verification then enroll the employee with PIN verification.

3.4   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 in (3.3) 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 TCD will ask you to enter a PIN, enter the PIN and press enter. The employee details along with the PIN verification will be automatically sent to CCE.

- Follow the process above in (3.3) and after you have not been able to achieve a valid bio scan after three attempts the TCD will ask "Assign ID as Special User ? " if you press the enter key the TCD will ask you to enter a PIN, enter the PIN and press enter. The employee details along with the PIN verification will be automatically sent to CCE.

4 HOW DO I RECORD A CLOCKING?

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

- Enter your employee number via the keypad and press the enter key.
- If your employee number is found - The TCD will quickly beep 6 times and will ask you to place your finger on the sensor – the light either side of the sensor will be illuminated white.
- Place your pre-registered finger on the sensor pad.

If the sensor reads and confirms your finger the TCD will quickly beep 6 times, the light next to the sensor will turn green and the TCD the transaction will be saved.

If the sensor has trouble reading your finger or it can't be found in the database the TCD will error tone twice and turn the light either side of the sensor red. The TCD will then display that "Sample finger has not be authenticated" for a few seconds then ask you to place your finger on the sensor to try again.

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

- Enter your employee number via the keypad and press the enter key.
- The TCD will display "Requesting user account profile. Please Wait."
- If your employee number is found - The TCD 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 TCD will quickly beep 6 times and the transaction will be saved.

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

5   COMMON MISTAKES

The following figures illustrate some common mistakes to avoid.

5.1   Don't slide the fingertip into place

This will cause distortion of the fingerprint and will degrade image quality. Keep the fingertip raised while locating the Ridge-Lock, and then lower the fingertip.

5.2   Don't rotate the finger into place

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


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

This will not provide adequate information and will degrade system performance. Proper sensor height and angle along with consistent use of the Ridge-Lock deters this behaviour.

5.4   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.
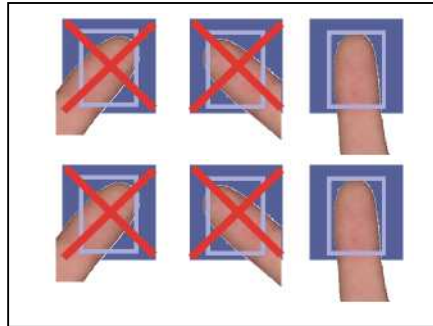
6 COMMON REASONS FOR POOR BIOMETRIC OPERATION

To enrol successfully the user must achieve a minimum of 20 for quality and a 40 for content.

The time clock will report both the quality and content of the scanned fingerprint during the enrolment process. **Note** these values from the time clock and check them below for help.

6.1 If the content is low

Check that the user is using an index or middle finger for the enrolment, typically if the content is low then there is not enough fingerprint covering the sensor. Also check that the user is placing their finger with the swirl centred on the sensor.

6.2 If the content is high but the quality is low

Check that the user is not pressing too hard against the sensor, if the user is pressing too hard the image will have a lot of content but it will be blurred by the pressure. You can tell if the user is pressing too hard as they will be pressing the blood out of their finger tips.

6.3 If the quality reported is low and the content is high

Check that the user is pressing hard enough, the pressure applied should be a nice firm pressure without pressing blood from the users finger tips.

6.4 If the Bio Sensor is dirty

Section 6 in this document lists the procedure to clean the Biometric Sensor.

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 the Ridge-Lock rests comfortably within the first indentation of the finger. 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	If the user washed their hands, but failed to completely dry the finger that is sampled, excessive moisture may cause the sample to be more difficult to obtain. Dry wet or moist fingers before sampling.
Finger too dry	Depending upon the geographical area, the season, and the skin type, their fingerprint might be excessively rough or 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 MT300 mounting height

The recommended mounting height of MT300PoE is 1.5 metres from the floor to the centre of the MT300 PoE case. This height has been calculated based on combined optimum finger placement angle on bio-sensor to ensure reliable performance and LCD visibility.
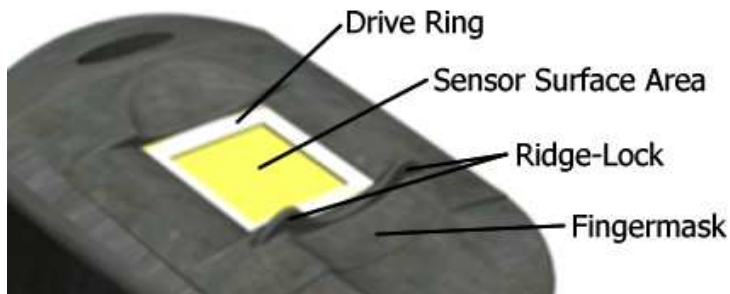
7.2   How often should I clean the Bio Sensor?

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, nonchlorine 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)

7.6 Cleaning the Drive Ring

If you have tried cleaning the sensor ring and it is still marked or appears stained.

The drive ring bordering the sensor is constructed of high-conductivity, silver-filled epoxy. The main culprit for the darkening effect is the silver in the drive ring. Silver is tarnished by sulfur-containing materials, particularly Hydrogen Sulfide (H2S). Tarnish is accelerated in a humid environment.

To clean the drive ring surrounding the sensor, perform the following steps:

- Turn the clock off and remove the Electrical power.
- Using a red-rubber lead-pencil eraser, "erase" the drive ring (i.e., rub the ring with the eraser). The ring should clean quite well.

- **Do NOT rub the sensor surface with the eraser.** This should not affect the sensor; however, if the metal band that holds the eraser touches the sensor surface, it will scratch and damage the sensor permanently.

- **Do NOT use an old or used eraser.** An eraser worn down to the metal band can damage the sensor surface area and also the drive ring. Additionally, a reasonably new eraser should be used for best results.

- Brush off the eraser dust with a clean, dry cotton swab or tissue.

- **Do NOT clean the eraser dust with a wet or damp material.** The sensor surface will withstand it, but the associated electronics can be damaged.

- **Do NOT scratch the sensor surface with a metallic object.** When brushing away the eraser dust, make sure not to scratch the sensor with jewellery, metal, hand watch, ring, etc.

7.7   Caring for the fingerprint sensor

The sensors are designed to perform well even under harsh conditions; nevertheless, some precautions should be taken to avoid damaging the sensor:

The sensor can be damaged by a discharge of static electricity from your body. However, a plastic conductive fingerprint mask that is connected to a ground plane surrounds the fingerprint sensor. You should always touch the conductive plastic mask before touching the sensor in order to safely discharge any static electricity that may be present on your skin or clothing. The Ridge-Lock is provided as part of this conductive mask to serve both as a finger placement guide and as the first point of contact with the reader. To properly use this Ridge-Lock, slide your finger across the ridge, parallel to the sensor. When the ridge locks into place under your first joint, lower your finger evenly onto the sensor and apply moderate pressure. Using such fingerprint placement will guarantee that static electricity is discharged from your body before touching the sensor directly.

Do not place the fingerprint sensor close to a heat source, such as a radiator or hot plate. With the exception of the above-mentioned cleaners, do not spill any liquids on the sensor.

The sensor should not be exposed to direct contact with the elements, such as excessive heat to prevent discomfort, rain, snow or excessive moisture. If placed outdoors, it is important that the readers be located within a complete enclosure.

Do not subject the fingerprint sensor to heavy shocks or vibrations.

Do not allow the sensor to come in contact with metallic objects.