## GFS-220 and GFS-220F

 User GuideMulti-currency 1.5 pocket desktop banknote counter

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We appreciate the confidence and trust you have placed in Glory through the purchase of this cash handling solution. Glory strives to create innovative, high quality products, to optimise your processes for handling, movement and management of cash.

This manual will help you understand your cash handling solution and how to achieve the best performance from it. Please keep this document in a safe place for future reference.

Visit us online at www.glory-global.com to see our full range of solutions.

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## 1 Safety Overview

## Obligations of the user

Everyone who uses the machine must:

- Read this manual
- Observe the safety instructions and warning labels
- Glory or its representative should replace damaged safety devices such as fuses and warning labels immediately


## Safety instructions

## Warning instructions

Please pay special attention to the warnings in this manual.
Recommendations are given as to what should be done to minimize any possible danger.


## ATTENTION

The indication ATTENTION warns of the danger of minor physical injury or damage to equipment.


## ATTENTION

Electrostatic sensitive device (ESD). Observe ESD precautions before handling.


## WARNING

The indication WARNING warns you of the danger of serious physical injury.


## DANGER TO HANDS

This symbol indicates possible injuries to the hands while handling modules.


## DANGER TO HANDS - FAST MOVING PARTS

This symbol indicates possible injuries to the hands due to fast moving parts.


ELECTRIC SHOCKS
The indication warns of possible injuries through electrical voltage.


HOT SURFACE
The indication warns of possible injuries through a hot component.

## General notes concerning safety

| WARNING |
| :--- |
| Due to the nature of their work, an operator or service technician may |
| have to bypass normal safety interlocks and features to carry out some |
| of the instructions in this manual. |
| - Always restore safety interlocks after completing work. |
| At any risk or danger, disconnect the mains cable from the mains |
| outlet. |
| WARNING |
| Battery Usage: Never replace a battery unless you are sure of the correct <br> procedure! Contact support if in question! <br> - Please note that, if the machine contains Lithium Batteries, there is <br> danger of explosion if the battery is incorrectly replaced. <br> Replace only with the same or equivalent type recommended by the <br> manufacturer. Dispose of used batteries according to the <br> - mo not shorts instructions. <br> - Risk of explosion if or tamper with the battery. <br> - In case of leaking, avoid contact. In the case of contact, wash in <br> - running water. In case of irritation, seek medical assistance. <br> - Avoid leaving the battery inside the device for long periods on non <br> use. |



## DANGER TO HANDS

Take extra care when cover plates have been removed.

- Beware of fast moving mechanical parts.
- Always reassemble cover plates after completing work.

To avoid injury, adhere to the following precautions:

- Always turn off the mains power supply before opening the safe door.
- Always hold the modules by the handling points marked in green.
- Close the safe door and covers carefully.



## HOT SURFACE

Certain parts of the equipment may become hot during operation and lead to a burn injury.
To avoid injury, adhere to the following precautions:

- Do not touch the surfaces marked with the HOT SURFACE indication.
- Always hold the modules by the handling points marked in green.



## ELECTRIC SHOCKS

Note that just removing mains cable will cause loss of protective ground connection! To fully disconnect the equipment from mains you must:

1. Turn the power button off;
2. Unplug the equipment mains cable. Reverse above steps to restore mains.
Improper handling of electrical components can lead to fatal injuries caused by electric shock!

- Mishandling or incorrectly connecting the equipment may result in unsafe operation.
- Electrical work shall be performed only by qualified personnel!
- Check the earth connection and the RCD.

Remember to take extra care when cover plates have been removed, units disconnected, or circuit boards unplugged.

- The power supply contains unswitched line voltage.
- Never leave a partially serviced machine unattended when connected to the mains.
When connecting the equipment to a 220 VAC outlet created by using two 110 VAC poles it is necessary to connect via a double pole 15 A circuit protector.



## FLAMMABLE

Disconnect the machine from the mains and allow machine parts to cool.

- Please check suitability with the air duster manufacturer.
- Use only non-flammable compressed air (i.e. not Butane / Propane or any other flammable propellant).

- Carefully follow all safety precautions / instructions provided by the air duster manufacturer.


## Compliance Statement

This product has been tested and found to comply with the limits for class A Information Technology Equipment according to International Standard CISPR32/European Standard EN55032.


WARNING
This is a class A product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

## FCC Interference Statement



## WARNING

This equipment generates, uses and can radiate radio frequency energy. If not installed and used in accordance with the instruction manual, it may cause interference to radio and television reception. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference with radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by taking one or more of the following measures:
Relocate the receiving (radio/TV) antenna with respect to the equipment. Warning: Only equipment certified to comply with the Class A limits may be attached. Operation with non-certified equipment is likely to cause radio and TV reception interference.
Peripherals should be interfaced using only shielded cables to maintain FCC Class A certification and to reduce the possibility of interference with radio and television reception.

## Reference material

If this equipment does cause reception interference, the user should contact an authorized sales or service representative for suggestions. Two booklets, the CIB Interference Handbook and the CIB Telephone Interference Booklet, are provided by the Compliance and Information Bureau of the Federal Communications Commission. To obtain copies, call the Bureau at (202) 418-1100 or the Internet at http://www.fcc.gov/cib.
Glory is pleased to give detailed specifications of its products in this manual but expressly reserves the right to vary these at its discretion at any time without notice. As the company's products and services are continuously being developed it is important for customers to check that the information herein includes the latest particulars. This guide is for general guidance only and may contain inappropriate information under particular conditions of use. All recommendations and suggestions issued by or on behalf of the company in whatever form, are subject to the company's terms and conditions of sale, of which a copy will be supplied on request. This document is not part of a contract or license, save insofar as may be expressly agreed.

## 2

## Introduction

## Audience for this guide

The audience for the User Guide includes:

- New users seeking an overview of the machine
- Users seeking to answer a question or resolve a problem
- Supervisors seeking to configure the machine.


## Obligations of the user

Everyone who uses the machine must:

- Read this User Guide
- Comply with all safety instructions and warning labels
- Use and clean the machine in accordance with the instructions given
- Notify their authorised support organisation of any damaged safety devices (such as fuses and warning labels) that need replacement.


## Variants

There are two models in the range:

- GFS-220 (non-fitness)
- GFS-220F (fitness).

Both models value and authenticate notes. The GFS-220F also sorts notes on condition. Both models have a stacker pocket and a reject pocket (known as 1.5 pocket), with 500 -note guides as standard.

| Description | With connectivity | With connectivity <br> and internal printer | With connectivity <br> and extra Mag | With connectivity, <br> printer, extra Mag | With connectivity, <br> printer, Shutter |
| :--- | :--- | :--- | :--- | :--- | :--- |
| Standard model | GFS-220-C | GFS-220-CP | GFS-220-CR | GFS-220-CPR | GFS-220-CPS |
| Fitness model | GFS-220F-C | GFS-220F-CP | GFS-220F-CR | GFS-220F-CPR | GFS-220F-CPS |

Further optional features are available for both variants.

- Hardware:
- Seven-segment LED remote display
- LCD remote display
- Alternative 1000 -note guides.
- Software:
- Support for additional currencies (three provided as standard)
- Barcode scanning for TITO (Ticket In / Ticket Out) tickets (release date to be confirmed).


## Invalidation of warranty

You must not modify the machine without written authorisation from Glory Global Solutions. Modifying the machine, or using it for anything other than processing banknotes or other approved documents (such as tickets or gaming slips), may invalidate the warranty.

## Service information

The machine contains no parts that can be maintained or repaired by users. If the machine is not operating properly and the fault cannot be remedied by following the troubleshooting procedures in this guide (see page 76), contact your authorised support organisation to arrange for it to be serviced by a qualified service technician using approved spare parts and tools.
When you contact your support organisation, you will need the machine's serial number and the software versions. The serial number is shown on a label at the rear of the machine (see page 13). The software versions are available from the Information screen (see page 55).

## Conventions used in this guide

Physical keys on the machine are shown like this: Name key.
Buttons on the touch screen are shown like this: Name button.
Terms and messages that the machine displays on screen are shown like this: Setup menu or Message.

Note
This records supplementary information related to the main text.

## For the sake of the environment

This highlights where guidance is given to save energy, reduce waste or otherwise benefit the environment.

## Important

This highlights key points related to the main text.

## (!) Caution

This indicates where there is a risk of injury or damage.

## Risks



The feeder uses fast-moving rollers to feed notes into the transport mechanism.
To avoid any risk of entanglement, keep your hands and clothing clear of the feed rollers.


The top and middle sections of the machine open to enable you to clear jammed notes and to clean the sensors, detectors and rollers.
To avoid any risk of damage to your hands, ensure that the sections are fully open and stable before reaching into the machine.

## 3 Quick start summary



Connect the power cable and switch on (see page 17 and page 18)


Select a currency (see page 20)


Select a counting mode (see page 21)


Place notes on the feed hopper and, in manual start mode, press the (1) key (see page 18) Always use the note guides. They ensure that the notes are straight as they enter the feeder. Never feed notes that are held together with staples, paper clips or elastic bands.


Remove notes from the stacker and reject pockets
Feed rejected notes again, if required, to separate notes rejected for different reasons.

## 4 Overview of the machine

## Purpose of the machine

## Counting

Counting machines can count pieces of paper, and calculate the total value of recognised banknotes.

## Denomination sorting

Denomination sorting machines fitted with appropriate sensors can sort genuine notes in various ways to produce orderly stacks of specific denominations.

## Denomination sort - by value of note

The machine groups notes of the same denomination and separates other denominations.


## Face sort - by front/back (obverse/reverse)

The machine groups notes that have the same face upwards.


Orientation sort - by top/bottom
The machine groups notes that have the same edge forwards.


## Issue sort - by series

The machine groups notes of the same issue and separates other issues.


## Authentication

Banknote designs incorporate security features that can be used in authentication. These vary with currency. Machines detect the security features of the currencies that they support and validate them against stored templates to authenticate genuine notes and reject suspected counterfeits. Examples of features that can be used in authentication are:

- Ultraviolet levels

The papers on which notes are printed respond to ultraviolet light in specific ways. Ultraviolet detectors enable machines to look for variations that suggest counterfeits.

- Fluorescence levels

The papers on which notes are printed have specific levels of fluorescence. Fluorescence detectors enable machines to look for variations that suggest counterfeits.

- Magnetic inks and inserts

Some areas of a note may be printed using magnetic inks and there is often a magnetic thread running across the note. Magnetic detectors enable machines to compare these features with the stored template.

- Infrared inks

Some areas of a note may be printed using inks that respond to infrared light. Infrared detectors enable machines to compare these features, which are not visible to the human eye, with the stored template.

## Fitness sorting - by wear and damage (GFS-220F only)

This determines whether notes are fit to be recirculated. The criteria for dispensing by human and automated tellers may vary. They can include:

- Soiling - surface dirt that increases optical density
- Staining - localised accumulation of surface dirt and ink
- De-inking - printing damaged by washing or general wear
- Tears - damage extending from the edge of a note
- Holes - damage in an area away from the edge of a note
- Tape - the presence of self-adhesive tape used to repair a torn note
- Folding - sharp creases in a note
- Folded corners - corner of a note turned over
- Missing corners - corner of a note torn or cut off.

In Decision ECB/2010/14, the European Central Bank (ECB) defined a Banknote Recycling Framework (BRF) that specifies fitness criteria for euro notes. This stringent standard, which may result in a low yield of notes for recirculating, is a legal requirement when using euros within the Euro area but does not apply outside it. Euro notes that do not meet the BRF standard must be returned to the ECB for destruction.
Countries and organisations may prioritise different fitness criteria for other currencies. In some regions, notes tend to be more heavily soiled and the threshold for rejection may be higher. In other regions, specific problems such as tape repairs and folded corners may be more common.

## Misfeeds

To enable the machine to process notes accurately, it has a robust transport system that moves notes smoothly and evenly. It knows when more than one note has been fed at the same time (doubles) and when notes are too close together (streams). Such misfeeds are placed in the reject pocket and excluded from totals because they cannot be processed reliably.
The machine also places over-runs in the reject pocket. These are notes that it could not feed to the correct destination before stopping. For example, if a pocket that is being used for ten euro notes becomes full and the next two notes are ten euro notes, they will be placed in the reject pocket while the machine is stopping.
The operator can feed rejects into the machine again, first preparing the stack of notes to separate doubles and straighten skewed notes.

## Overview of the machine

Note
The space between notes is known as the inter-note gap. The machine needs this interval to process data from sensors and detectors, and thus determine the notes' characteristics.


## Capability of the machine

## Operating modes

The machine provides all the facilities described in the previous section.
The machine authenticates notes by comparing their security features with the stored templates that it holds for supported currencies. When it detects a suspected counterfeit, it records a reject reason of 'Suspect'.
The machine has four counting modes:

- MIX - accepts recognised notes of assorted currencies and denominations, and totals by value and number (see page 25)
- PCS - counts pieces of paper without authenticating them (see page 27)
- MIXED - accepts recognised notes of assorted denominations and totals by value and number (see page 29)
- SINGLE - accepts only one denomination and totals by value and number (see page 34 ).

The machine has three denomination sort modes:

- FACE - separates notes that are fed face-up from those fed face-down (see page 30)
- ORIENT - separates notes that are fed top-edge first from those fed bottom-edge first (see page 32)
- ISSUED - separates different issues of the same denomination (see page 39).

The GFS-220F has two fitness modes (see page 36):

- ATM/BRF - fit for recirculation in accordance with requirements set by a national bank such as the ECB's Banknote Recycling Framework (BRF)
- FIT - fit for recirculation through other channels, such as a human teller.

The machine has a stacker pocket into which it places notes that meet the selected mode's criteria. The machine has a reject pocket into which it places notes that do not meet the mode's criteria and unrecognised notes that it cannot match to a stored template. Unrecognised notes are also known as 'suspects' and may include counterfeits. When the machine is sorting notes into two fitness grades (GFS-220F only), it places notes of the second grade in the reject pocket. The operator must feed the notes from the reject pocket again to separate unfit notes from other rejected notes. This technique is known as 'virtual pocket'.

## Programmable function keys

The machine has four function keys that provide direct access to commonly used aspects of the machine's operation. These keys are programmable (see page 52), enabling operators to set up the machine to suit their working practices.
Some screens have a help icon to provide a summary of the available function keys. Touching the help icon (A) displays the actions (B) that are performed by the keys to the right of the screen while that screen is displayed.


## Main components

## Front view



No Name
1 Feed hopper sensor
2 Touch screen
3 Reject pocket indicator
4 Reject pocket sensor
5 Stacker pocket sensor
6 Note guide
7 Feed hopper

8 Reject pocket
$9 \quad$ Printer [optional]
10

Description
Starts the machine when notes are placed in the feed hopper.
Displays machine information and accepts operator input.
Shows steady red when there are notes in the pocket.
Detects the presence of notes in the reject pocket.
Detects the presence of notes in the stacker pocket.
Aligns notes as they are fed.
Holds notes that are to be processed. Maximum: 500 notes (1000 notes with alternative note guides [optional]).

Holds notes rejected by the machine on criteria defined by the selected mode. The machine stops whenever the reject pocket is full and instructs the operator to empty the pocket.
Capacity: up to 100 notes, depending on conditions (default 50 notes).

Records transactions and reports on a tally roll.
Holds notes that have been processed.
Capacity: 250 notes (default 200 notes).

## Rear view



## No Name Description

1 Feed gap adjuster
2 Top cover latch
3 Serial number
4 Dust tray
5 On/off switch Switches the machine on and off.
6 Mains power socket Enables the machine to be connected to the AC power supply.
7 Interface ports Enable the machine to be connected to external devices (see page 70).

Do not attempt to remove the casings or gain access to the inside of the machine.

## Overview of the machine

## Machine with shutter



Control panel


No Name
1 Start/Stop keys


2 Menu/Exit key ㅎ

3 Touch screen
4 Programmable function keys

## Description

In manual start mode, starts the feeder.
In both manual and automatic start modes, stops the feeder. In both manual and automatic start modes, restarts the feeder.

Displays the main menu.
Exits configuration menus, with a prompt to save changes.
Clears error messages.
Displays machine information and accepts operator input.
Execute the actions assigned to them using the Key Setting configuration option (see page 52).

## Elements of the touch screen

When started, the machine displays the screen shown below. This tells you which modes are currently selected and some aspects of the machine's configuration.


You can often access functions or obtain more information by touching areas of the screen. In this example, you can select currency and counting mode by touching USD and MIXED; you can view note details by touching the displayed totals and pocket contents.

## Installing the machine

## 5 Installing the machine

## Tools required

- Craft knife to cut the tape of the shipping carton.


## Unpacking

First inspect the carton and report any damage immediately to the shipping company and your authorised Glory Global Solutions support organisation.

## Note

To lift the machine when packed, use the cut-outs in the box.
To unpack the machine:

1. Cut the tape and open the flaps.
2. Remove the accessories:

- 500 -note hopper guides [1000-note optional]
- Mains power cable
- Remote display (see page 69) [optional]
- CD containing this user guide.

3. Remove the upper packaging.
4. Lift the machine out of the lower packaging.
5. Remove the shipping bag.
6. Remove the adhesive tape used to protect the machine during transit.
7. Place the packaging and shipping bag back in the carton and store for future use.
8. Check the items received against the order and report any discrepancies to your authorised Glory Global Solutions support organisation.

## For the sake of the environment

If you dispose of the packaging rather than storing it, please do so in an environmentally responsible manner and recycle where possible.

## Siting

When selecting a suitable location for the machine:

- Use a well-supported surface that is:
- Flat and level
- Larger than the machine
- Able to bear the machine's weight.
- Make sure that the on-off switch is easy to reach.
- Make sure that the top and middle sections open fully without obstruction.
- Do not expose the machine to:
- Direct artificial light or sunlight
- Other sources of heat
- Excessive vibration or draughts
- Strong magnetic fields.
- Do not enclose the machine - it must have adequate ventilation.
- Do not use the machine outdoors or where the relative humidity exceeds $90 \%$.

Inappropriate locations may damage the machine, impair its performance, or injure its user.

## Connecting the power

The supply voltage required is stated on the serial number label on the rear of the machine.
Ensure that the AC power supply is within $\pm 10 \%$ of this voltage.

## (!) Caution

- Do not connect the machine to a AC power supply of the incorrect voltage.
- Do not overload the AC power supply.

Important
The AC power supply must be earthed.
To connect the machine to the AC power supply:

- Use a dedicated socket that supplies power to this machine only.
- Use only the approved power cable that is supplied with the machine.


Note
Check the power cable periodically. If you see any damage or deterioration, switch off the AC power supply and unplug the cable. Ask a qualified service technician to replace the cable with an authorised spare part.

## Connecting other devices

The machine has interface ports for connecting devices such as printers and computers (see page 70).

## Note

No interface cables are supplied with the machine.

## 6 Using the machine

## Powering up

To start the machine:

1. Switch on the power using the on/off switch at the rear of the machine.
2. Wait for it to complete its start-up sequence, which includes a self-test routine.

The machine displays the product logo.
The machine starts up using the same configuration settings as in the previous session.
The first time that you use the machine, you may want to select a different language (see page 50 ) or set the date and time (see page 59 ).

Note
If the machine displays a message telling you to clear a pocket that is already empty, this may indicate that high light levels are preventing the pocket sensors from operating correctly. The machine must not be sited in direct artificial light or sunlight.

## Preparing your notes

Damaged notes can cause the machine to jam and fragments may become stuck in the transport mechanism. To get the most from the machine, prepare your notes carefully:

1. Fan the notes and remove any that are in very poor condition.
2. Tap the bundle of notes on the work surface to align the edges.
3. Adjust the note guides on the feeder to suit the note length.

## Note

Always use the note guides. They ensure that the notes are straight as they enter the feeder, and thereby reduce the number of notes rejected as misfeeds (see "Misfeeds" on page 9).


## (!) Caution

Never feed notes that are held together with staples, paper clips or elastic bands.

## Processing notes

To operate the machine:

1. Select a currency (see page 20).
2. Select a counting mode (see page 21).
3. If required, change the machine's counting speed (see page 48).
4. If required, select Batch mode (see page 48).
5. If required, select Add mode (see page 49).
6. Place your prepared notes (see above) on the feed hopper.
7. In manual start mode, press the (1) key to start processing the notes.

In automatic start mode, the machine starts processing the notes immediately. If the machine cannot feed the notes, prepare the bundle of notes again.

## Note

To change the start mode, see page 47.
8. Add notes to the feed hopper when you see that it is nearly empty.

If you have specified a batch limit and the supply of notes runs out before this limit is reached, the machine displays this message when you remove notes from the stacker pocket:


To clear the message, press the 0K button.
9. Empty the stacker pocket when its capacity is reached and the count is shown in red.
10.Empty the reject pocket when its capacity is reached and the count is shown in red.

You can re-feed rejected notes if you think they should have been accepted.
11. Continue operating the machine until you have finished processing notes.

The machine automatically displays totals for the notes it has processed, by count (A) and value (B).


In this example, a batch limit of 500 euros has been set (C). The machine has fed 37 notes into the stacker pocket and then stopped because the batch limit has been reached. When the operator removes the notes, the machine resumes feeding notes from the feed hopper to create the next batch.
When a batch is completed, the machine displays the stacker pocket count in red (D).
12.To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket.
- Touch the button to view the reasons for notes being placed in the reject pocket.
13.If required, press the function key assigned to Printing Result (see page 52) to send counting results and day totals to the integral or external printer (if fitted and enabled). 14.Remove the notes from the pockets.


## Selecting a currency

To view the currencies available on the machine, touch the currency button at the bottom of the screen. Currencies for which fitness data is available are shown in green.
The button for the currently selected currency is shown in yellow.
Touch a currency to select it.


If more currencies are installed than can be shown on one screen, a green arrow is displayed at the right; touch the arrow to scroll to the remaining currencies.


The MIX button enables you to process assorted currencies, displaying the number and value of notes in each currency. For information about MIX mode, see page 25.
The PCS button enables you to count unspecified pieces of paper (for example, cheques and banknotes that the machine does not recognise). For information about PCS mode, see page 27.

## Selecting a counting mode

To view the modes available for the selected currency, touch the counting mode button at the bottom of the screen. This function is allocated to the F2 key by default.
The button for the currently selected mode is shown in yellow.
Touch a mode to select it.


Touch the 三 button to display the sub-modes available within the Face, Orient, Fit, ATM/BRF and Issued and Check (Cheque) modes.


The mode and sub-mode that you select determines how notes are processed and which notes are placed in the stacker and reject pockets (see page 22 ).

- The machine needs time to interpret the information from sensors and detectors in the transport. It places notes that the feeder does not pass through singly and at regular intervals into the reject pocket. These include doubles (multiple feeds) and streams (abutting or overlapping notes), as described in "Misfeeds" on page 9.
- The ultraviolet, magnetic and infrared detectors must be enabled for the machine to authenticate notes fully. If they have been disabled (see page 62), the machine will recognise notes and count notes but will not be able to detect counterfeit notes that lack appropriate security features.
- The OCR detector translates the serial number on scanned note images into text.

AUTO 1000 npm
10:08
Detectors disabled

## Mode summary

The following table shows the types of notes that the machine puts into the stacker and reject pockets for each mode. Detailed descriptions of each mode are in the following sections.

| Mode | Types of notes put into each pocket |  |
| :---: | :---: | :---: |
|  | Stacker pocket | Reject pocket |
| Mixed currencies (MIX) |  |  |
| MIXED | Recognised notes | Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |
| FACE | Recognised notes, 1st face | Recognised notes, 2nd face <br> Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| ORIENT | Recognised notes, 1st orientation | Recognised notes, 2nd orientation <br> Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| Piece (PCS) | Paper pieces | Misfeeds (see page 9) |
| Mixed denomination (MIXED) | Recognised notes | Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |
| Face (FACE) |  |  |
| Mixed denominations | Recognised notes, 1st face | Recognised notes, 2nd face <br> Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| DD | 1st denomination, 1st face | 1st denomination, 2nd face Other denominations Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |
| Orientation (ORIENT) |  |  |
| Mixed denominations | Recognised notes, 1st orientation | Recognised notes, 2nd orientation <br> Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| DD | 1st denomination, 1st orientation | 1st denomination, 2nd orientation Other denominations Unrecognised notes Misfeeds (see page 9) <br> Suspects (see page 11) |
| Single denomination (SINGLE) |  |  |
| DD | 1st denomination | Other denominations Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |
| DEN A | Denomination A | Other denominations Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |


| Mode | Types of notes put into each pocket |  |
| :---: | :---: | :---: |
|  | Stacker pocket | Reject pocket |
| Fitness - adjustable (FIT) - GFS-220F only |  |  |
| MIXED | Recognised note, of required fitness level | Unrecognised notes Unfit for this grade* Misfeeds (see page 9) Suspects (see page 11) |
| MIXED+ | Recognised notes, of required fitness level, 1st orientation | Unrecognised notes Unfit for this grade* 2nd orientation Misfeeds (see page 9) Suspects (see page 11) |
| DD | 1st denomination, of required fitness level | Unrecognised notes Unfit for this grade* Other denominations Misfeeds (see page 9) Suspects (see page 11) |
| DD+ | 1st denomination, of required fitness level, 1st orientation | Unrecognised notes Unfit for this grade* Other denominations 2nd orientation Misfeeds (see page 9) Suspects (see page 11) |
| Fitness - fixed (ATM/BRF) - GFS-220F only |  |  |
| MIXED | Recognised notes, fit for use under the BRF | Unrecognised notes Unfit for this grade* Misfeeds (see page 9) Suspects (see page 11) |
| MIXED+ | Recognised notes, fit for use under the BRF, 1st orientation | Unrecognised notes Unfit for this grade* 2nd orientation Misfeeds (see page 9) Suspects (see page 11) |
| DD | 1st denomination, fit for use under the BRF | Unrecognised notes Unfit for this grade* Other denominations Misfeeds (see page 9) Suspects (see page 11) |
| DD+ | 1st denomination, fit for use under the BRF, 1st orientation | Unrecognised notes Unfit for this grade* Other denominations 2nd orientation Misfeeds (see page 9) Suspects (see page 11) |


| Mode | Types of notes put into each pocket |  |
| :---: | :---: | :---: |
|  | Stacker pocket | Reject pocket |
| Issued (ISSUED) |  |  |
| MIXED | Recognised notes, 1st issue | Recognised notes, other issues Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| MIXED+ | Recognised notes, 1st issue, 1st orientation | Recognised notes, other issues <br> 2nd orientation <br> Unrecognised notes <br> Misfeeds (see page 9) <br> Suspects (see page 11) |
| DD | 1st denomination, 1st issue | 1st denomination, other issues Other denominations Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |
| DD+ | 1st denomination, 1st issue, 1st orientation | 1st denomination, other issues Other denominations 2nd orientation Unrecognised notes Misfeeds (see page 9) Suspects (see page 11) |

## Mixed currency count (MIX)

Note
MIX mode is selected in the same way as a currency (see page 20).

## Purpose

Mixed currency count has three sub-modes:

- Mixed: counts bundles of assorted currencies and denominations.
- Face: sorts bundles of assorted currencies and denominations by face.
- Orient: sorts bundles of assorted currencies and denominations by orientation.

The number and value of notes in each currency are displayed sequentially on the touch screen. If more currencies are processed than can be shown on one screen, a green arrow is displayed at the right; touch the arrow to scroll to the remaining denominations.
For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Set currency to MIX.
2. Select Mixed, Face or Orient using the counting mode button.
3. Start processing notes (see page 18).

The machine processes the notes and displays the total number and value of each currency.


In this example, there are no rejects.
If you selected Face sub-mode, the machine also sorts the assorted currencies in a similar way to how it sorts assorted denominations of the same currency (see page 30).
If you selected Orient sub-mode, the machine also sorts the assorted currencies in a similar way to how it sorts assorted denominations of the same currency (see page 32).


If a green arrow is shown at the right of the screen, touch the arrow to view more currencies. 4. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the $\mathbf{F} 2$ key.
- Touch the 罗 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.

| STACKER | REJECT |  |  | (?) |
| :---: | :---: | :---: | :---: | :---: |
| VISUAL |  |  | LIST ( 1/3) |  |
|  |  |  | 1. | c10 |
|  |  |  | 2. | €20 |
|  |  |  | 3. | €5 |
|  |  |  | 4. | € |
|  |  |  | 5. | $€ 5$ |
|  |  |  | 6. | $€ 5$ |
|  |  |  | 7. | €5 |
|  |  |  | 8. | €10 |
|  |  |  | 9. | €10 |
|  |  |  | 10. | €10 |



To move between the stacker and reject pockets, touch the Stacker and Reject tabs. For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

Piece count (PCS)
Note

- PCS mode is selected in the same way as a currency (see page 20).
- Authentication detectors are disabled in PCS mode, the only mode in which this is done automatically.
- When processing items other than banknotes, the feed gap may need to be adjusted to accommodate paper of a different thickness (see page 41).


## Purpose

Use this mode to count paper pieces. These may be non-currency documents (such as cheques), or banknotes for which no currency data has been loaded into the machine.
Piece count has two sub-modes:

- Mixed: for bundles containing paper pieces that are different sizes or in poor condition. The machine rejects only misfeeds.
- Single: for bundles of similar-sized paper pieces.

The machine rejects paper pieces of a different size from the first one fed.
For a summary of the paper pieces placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Set the currency to PCS.
2. Select Mixed or Single using the counting mode button.
3. Start processing paper pieces (see page 18).

The machine processes the paper pieces and displays the total number.


1. Mixed sub-mode

2. Single sub-mode

In Example 1, there are no rejects; only misfeeds will be rejected in the Mixed sub-mode.
In Example 2, there are 35 rejects; rejects in the Single sub-mode include paper pieces of a different size from the first piece fed.
4. To view the contents of the pockets:

- Touch the button to view images of the paper pieces in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of paper pieces processed, press the F2 key.
- Touch the 图 button to view the reasons for paper pieces being placed in the reject pocket.
To view images of the paper pieces in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of paper pieces rejected, press the $\mathbf{F} 2$ key.


To move between the stacker and reject pockets, touch the Stacker and Reject tabs. For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Mixed denomination count (MIXED)

## Purpose

This mode enables you to count and value banknotes of assorted denominations of the same currency.
For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the Mixed button.
4. Start processing notes (see page 18).

The machine processes the notes and displays their total value.


In this example, the machine has counted 57 euro notes of assorted denominations into the stacker pocket, giving a total of 700 euros, and rejected five notes.
5. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket.

To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the $\mathbf{F} 2$ key.

- Touch the 罟 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.
The reject reasons below indicate that five notes were rejected because they were not recognised as euros (they were notes of another currency).



To move between the stacker and reject pockets, touch the Stacker and Reject tabs.
6. Remove the notes from the pockets.

For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Face sort (FACE)

## Purpose

This mode enables you to sort by face (separating obverse from reverse). The machine puts the first note into the stacker pocket and then puts all subsequent notes that have the same face uppermost into the same pocket; it puts notes that have the other face uppermost into the reject pocket. You can re-feed the notes from the reject pocket, without first emptying the stacker pocket, to complete the sort.
Face sort has two sub-modes:

- MIXED: mixed denominations
- DD: denomination of the first note processed.

For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the Face button.
4. Select MIXED or DD using the $三$ button.
5. Start processing notes (see page 18).

The machine processes the notes and displays their total value. In this example, it has counted 18 notes of one face into the stacker pocket; it has rejected 22 notes.

6. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the F2 key.
- Touch the 图 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the $\mathbf{F} 2$ key.
The reject reasons below indicate that 22 notes were rejected with a reason of 'Denomination', which includes notes fed with the opposite face from the first note. No notes were rejected for other reasons.



To move between the stacker and reject pockets, touch the Stacker and Reject tabs.
7. If required, feed the notes from the reject pocket again to separate the second face from other rejects.

## Note

Do not turn notes from the reject pocket over before refeeding: the machine has already done this. Do not empty the stacker pocket until you have finished feeding rejected notes.
8. Remove the notes from the pockets.

For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Orientation sort (ORIENT)

## Purpose

This mode enables you to sort by orientation (separating leading top edge from leading bottom edge). The machine puts the first note into the stacker pocket and then puts all subsequent notes that have the same edge forwards into the same pocket; it puts notes that have the other edge forwards into the reject pocket. You can re-feed the notes from the reject pocket, without first emptying the stacker pocket, to complete the sort.
Orientation sort has two sub-modes:

- MIXED: mixed denominations
- DD: denomination of the first note processed.

For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the Orient button.
4. Select MIXED or DD using the $\equiv$ button.
5. Start processing notes (see page 18).

The machine processes the notes and displays their total value. In this example, it has counted 26 notes of one orientation into the stacker pocket; it has rejected 5 notes.

6. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the F2 key.
- Touch the 图 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.
The reject reasons below indicate that 5 notes were rejected with a reason of 'Denomination', which includes notes fed with the opposite orientation from the first note. No notes were rejected for other reasons.



To move between the stacker and reject pockets, touch the Stacker and Reject tabs.
7. If required, feed the notes from the reject pocket again to separate the second orientation from other rejects.

## Note

Do not empty the stacker pocket until you have finished feeding rejected notes.
8. Remove the notes from the pockets.

For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Single denomination count (SINGLE)

## Purpose

This mode enables you to separate single denominations from a bundle of mixed denominations. You can separate one denomination at a time, either selected specifically or read from the first note processed (DD).
For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the Single button.
4. Touch the denomination that you want to be placed in the stacker pocket.

Touch DD if you want to read the denomination from the first note processed.

5. Start processing notes (see page 18).

The machine processes the notes and displays their total value. In this example, it has counted fifteen $€ 20$ notes into the stacker pocket; it has rejected 45 notes.

6. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the $\mathbf{F} 2$ key.
- Touch the button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.
The reject reasons below indicate that 40 notes were rejected because their denomination did not match the single denomination being separated and five notes were rejected because they were not recognised as euros (they were notes of another currency).



To move between the stacker and reject pockets, touch the Stacker and Reject tabs.
7. Remove the notes from the pockets.

For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Fitness sorts (GFS-220F only)

Note

- Fitness modes are available only on the GFS-220F and only for currencies with fitness data loaded.
- ATM/BRF mode is available only if ATM Mode is set to On (see page 63).


## Purpose

There are two types of fitness modes:

- Fixed (ATM/BRF): this is based on criteria set by an external authority (such as the European Central Bank's Banknote Recycling Framework for the euro).
- Adjustable (FIT): this is based on fitness parameters configured from the Supervisor menu (see page 67).
The fixed mode will be shown as ATM rather than BRF for currencies other than the euro.
Fitness sorts have four sub-modes:
- MIXED: mixed denominations
- MIXED+: mixed denominations, plus orientation
- DD: denomination of the first note processed
- DD+: denomination of the first note processed, plus orientation.

The machine places unfit notes in the reject pocket along with other rejects, such as misfeeds and unrecognised notes. When the DD, DD+ or MIXED+ settings are used, fit notes of a different denomination and/or orientation will also be placed in the reject pocket.
The machine uses a 'virtual pocket' principle to separate different types of notes that have been placed in the reject pocket. It prompts the operator to split the contents of the reject pocket into unfit notes, fit notes of a different denomination and/or orientation, and other rejects. This feature is available only when the Split Display option is enabled (see page 65).
When operating the machine in fitness modes, you are advised to enable Add mode (see page 49) and set Grand Total to Auto (see page 63). This provides a complete record of the notes processed without manual intervention.
For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the FIT or ATM/BRF button.
4. Select MIXED, MIXED+, DD or DD+ using the $\equiv$ button.
5. Start processing notes (see page 18).

The machine processes the notes and displays their total value. It shows the value of unfit notes in orange (top) and the value of fit notes in green (middle), with the overall total in black (bottom).
In this example, the machine has classified 53 notes totalling 610 euros as fit and five notes totalling 100 euros as unfit:


The machine places fit notes in the stacker pocket and unfit notes in the reject pocket.
The machine displays different messages, depending on the contents of the reject pocket:

- UNFIT NOTES: there are only unfit notes in the reject pocket.
- RE-FEED REJECTS: there are both unfit and rejected notes in the reject pocket.

6. Remove the fit notes from the stacker pocket and put them to one side.
7. Remove the notes from the reject pocket.

If the notes were all classified as unfit (as in this case), put them to one side. Otherwise, the machine asks if you want to split unfit notes from other rejected notes:

a. If you want to split the notes, touch the Split Rejects button and re-feed them. The machine tints the display to indicate that split mode is engaged and then places unfit notes in the stacker pocket and other notes in the reject pocket:


In this example, the machine has placed four unfit notes in the stacker pocket and one rejected note in the reject pocket (it was a note of another currency).
b. If you do not want to split the notes, touch the Ignore button. You can view the reject reasons in the same way as in other modes (see step 8.) or continue feeding more notes.
The machine maintains separate count results and totals for fit and unfit notes.
For this example, the MIXED sub-mode was selected. If DD had been selected, the machine would have placed notes of all denominations but the first into the reject pocket (as well as the unfit notes and other rejects). If MIXED+ or DD+ had been selected, the machine would also have placed notes of a different orientation to the first note fed in the reject pocket. The rejected notes may then need to be re-fed several times to separate them by reject reasons.
The sub-modes enable you to extract isolated notes from a stack of otherwise similar notes. However, if the stack includes many notes of different denominations and both faces/orientations, it may be easier to sort them using other modes before the Fitness sort.
8. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the F2 key.
- Touch the 罣 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.


This example shows the five rejected notes before re-feeding. One note did not match the selected currency, while the other four were classified as unfit because they were taped.
9. Remove the notes from the pockets.

For instructions on viewing detailed Totals, see page 45. Separate totals are maintained for fit and unfit notes (see page 46).
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Issued sort (ISSUED)

## Purpose

This mode enables you to separate bundles of mixed issues. The machine places the first issue fed in the stacker pocket and other issues in the reject pocket. Repeatedly empty the processed notes from the stacker pocket and then re-feed the notes from the reject pocket until all issues have been separated.
Issued sort has two sub-modes:

- MIXED: mixed denominations
- DD: denomination of the first note processed.

For a summary of the notes placed in each pocket in each mode, see page 22.

## Use

To use this mode:

1. Select the appropriate currency.
2. Touch the counting mode button.
3. Touch the Issued button.
4. Select MIXED or DD using the 三 button.
5. Start processing notes (see page 18).

The machine processes the notes and displays their total value. In this example, it has counted 37 notes of one issue into the stacker pocket; it has rejected 21 notes.

6. To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket. To step through the available images, touch the image area of the screen. To scroll down the list of notes processed, press the F2 key.
- Touch the 罣 button to view the reasons for notes being placed in the reject pocket. To view images of the notes in the reject pocket, touch the list area of the screen. To return to the list, touch the Reject tab.
To scroll down the list of notes rejected, press the F2 key.
The reject reasons below indicate that 21 notes were rejected with a reason of 'Denomination', which includes notes of a different issue (as well as denomination) from the first note fed. No notes were rejected for other reasons.


To move between the stacker and reject pockets, touch the Stacker and Reject tabs.
7. Remove the notes from the pockets.
8. If required, feed the notes from the reject pocket again to separate other issues from other rejects.
As some currencies have more than two issues in circulation, you may need to repeat this process until all issues have been separated.
For instructions on viewing detailed Totals, see page 45.
For instructions on using Batch mode in this counting mode, see page 48.
For instructions on using Add mode in this counting mode, see page 49.
For instructions on viewing End of Day statistics, see page 53.

## Setting the feed gap

The feed gap is the distance between the rollers that pick up notes from the feed hopper. Notes must be picked up reliably and evenly by these rollers: the gap needs to be large enough for notes to pass comfortably but small enough to prevent two notes being fed at the same time.
The optimum feed gap depends on the currency and on the condition of notes being processed. Before starting work with a new type of notes, you should process a bundle to check that the machine feeds the notes smoothly and counts them correctly.
If it does not, you need to adjust the feed gap:

- If two or more notes are being fed at the same time (doubles), or consecutive notes overlap (chain), the gap needs to be smaller.
- If the feed is hesitant, the gap needs to be larger.

There is an adjuster on the top of the machine, which can be turned using a coin:

- To make the gap smaller, turn the adjuster anti-clockwise by half a division.
- To make the gap larger, turn the adjuster clockwise by half a division.

Repeat the adjustment until the machine feeds notes correctly.


When the machine leaves the factory, the feed gap adjuster is set to the central position between + and -. This is appropriate for currencies that use notes of average thickness.

## Note

- A smaller gap is normally required for polymer notes than for paper notes.
- When processing notes or paper pieces of different thicknesses together, the feed gap will be a compromise and the feeder may operate less smoothly.
The Reject Reasons screen can confirm the cause of poor feeding (see page 46):
- Chain - feed gap may be too large
- Double - feed gap may be too large
- Skew - feed gap may be larger on one side of the feeder than the other.

If the machine does not feed and count notes correctly after setting the feed gap, clean the pickup, stripper and contra rollers in the feeder (page 73).
If the machine still does not feed and count notes correctly, the feed gap may need to be reset. Contact your authorised Glory Global Solutions support organisation for assistance.

## Stopping the machine

To stop the machine during an operation:

1. Press the (1) key.
2. Remove the notes from the feed hopper.
3. Remove the notes from the stacker and reject pockets.

## Note

This is an emergency stop. The machine immediately stops feeding notes. Notes already in the transport may not be placed into the appropriate pockets.

## Using the machine

## Restarting the machine

On rare occasions, the machine may lock up. Pressing keys will have no effect.
To restart the machine:

1. Remove the notes from the feed hopper.
2. Remove the notes from the stacker and reject pockets.
3. Switch off the power.
4. Wait for three seconds.
5. Switch on the power.

## Clearing jams

This section explains how to remove notes from different parts of the machine.
When you have removed the cause of the jam, the machine will purge any notes left in the transport path. You can then operate the machine as normal.
If any notes remain that cannot be purged, the machine will report this.

## (!) Caution

Do not attempt to remove the casings or gain access to the inside of the machine.

## Clearing notes from the feeder

1. Remove the bundle of notes from the feed hopper.
2. Open the top cover.

3. Rotate the feeder mechanism (A) to raise it from the hopper (B) and hold it in position.
4. While holding the feeder mechanism, pull the jammed notes gently away from the feeder rollers, taking care not to tear the notes.

5. Return the feeder mechanism to its normal position.
6. Close the top cover, lifting the latch to lock it.

## Using the machine

## Clearing notes from the upper transport

1. Open the top cover.

2. Remove all notes from the upper transport.
3. Close the top cover, lifting the latch to lock it.

## Clearing notes from the lower transport

1. Open the upper section by lifting the green release levers ( $A$ and $B$ ).

2. Remove all notes from the lower transport.
3. Close the upper section firmly until it latches in place.

## Viewing totals

The machine maintains several types of totals:

1. Counting results: totals for the notes just processed
2. Grand totals: cumulative totals for batches of notes processed
3. Day totals: totals for the current date
4. Reject totals: numbers of notes rejected for different reasons from the notes just processed
5. Fitness totals: numbers of notes classified as fit and unfit (GFS-220F only)

To return to normal operation, press the $\overline{\bar{\sigma}}$ key or place notes on the hopper.

## Counting results

As the machine processes notes from the feed hopper, it automatically displays running totals.

| \%o |  |
| :---: | :---: |
| 20 | $€ 100$ |
| 200 | € 50 |
|  | - |

Touch a running total to display the counting result, which is the number and value of each denomination included in the total (below left).


| тот | SERIAL |  | (1/5) |
| :---: | :---: | :---: | :---: |
| NO. | DENOM | TEXT | IMAGE |
| 1 | ¢5 | ZB2136732873 | 2B2136732873 |
|  |  | 732873 | 732873 |
| 2 | ¢5 | VA4993229018 | VA4993229018 |
|  |  | 229018 | 229018 |
| 3 | ¢5 | VA8775887321 | VA8775887321 |
|  |  | 887321 | 887321 |
| 4 | ¢5 | VB2377271953 | VB2377271953 |
|  |  | 271953 | 271953 |

Touch the Serial tab to display the serial numbers of the notes included in the total. The scanned image of the serial number is shown for each note (above right, Image column).
Some currencies have two serial numbers. In this case, the second serial number is shown on the grey line below the first serial number. The grey line is blank for currencies that have only one serial number.
For currencies with optical character recognition (OCR) available, the Text column contains the number extracted from the scanned image. For currencies with two serial numbers, the number extracted from the second image is shown on the grey line below the first serial number. If OCR is not available, the Text column is empty.

## Grand and day totals

From the counting results display, touch the centre of the screen to step between running, day and grand totals. Grand totals are available only when Add mode is selected (see page 49).


| TOTAL | SERIAL | ? |
| :---: | :---: | :---: |
| DENOM | COUNT | VALUE |
| ¢5 | 80 | €400 |
| €10 | 20 | € 200 |
| ¢ 20 | 59 | €1,180 |
| ¢50 | 7 | € 350 |
| €100 | 0 | €0 |
| €200 | 0 | ¢0 |
| €500 | 0 | € |
| TOTAL | 166 | € 2,130 |

In fitness modes (GFS-220F only), counting results for fit and unfit notes are shown on separate tabs (see below).
You can view statistics for the day and for other dates from the main menu (see page 53 ).

## Reject totals

In all modes, the machine places unrecognised notes and misfeeds in the reject pocket. In some modes, it also rejects notes for other reasons. The machine reports the primary reason for rejecting each note; there may be other reasons.


If single notes are being rejected as doubles, you will find fewer notes in the reject pocket than you would expect from the indicated number of doubles. If you find that single notes are often being rejected as doubles, consider adjusting the double level to change the threshold at which notes are judged to be doubles (see page 51).
In fitness modes (GFS-220F only), the machine places notes that do not meet the required standard in the reject pocket (see below).
Fitness totals (GFS-220F only)
In fitness modes (see page 36), the GFS-220F displays totals for fit notes first. Touch the Unfit tab to view totals for unfit notes and the Total tab to view totals for fit and unfit notes combined.



## 7 Configuring the machine

You can configure various aspects of the machine's operation. The options available to users are shown on the main menu. The last option on this menu provides access to the Supervisor menu (see page 57), which is protected by a supervisor passcode.

## Main menu

This menu enables you to control the general operation of the machine, making adjustments to suit the notes you are processing and the way you prefer to use the machine. It does not provide access to any functions that will interfere with correct operation of the machine but, depending how the machine has been configured, you may need to enter a passcode to use the menu.
Press the $\overline{\bar{\sigma}}$ key to display the menu.


Touch the appropriate button to make changes to the machine configuration.
After you have made changes within an option, either:

- Press the (1) key.

The machine saves your changes and returns to the previous menu.

- Press the $\overline{\overline{0}}$ key.

The machine displays Save to Memory?
When you touch the Yes or No button, the machine saves or discards your changes and returns to the previous menu.

## Mode Setup

Touch the Mode Setup button to select the following modes:

- Start mode
- Counting speed
- Batch mode
- Add mode
- Shutter.

MODE SETUP



## Start mode

Touch the Start Mode button to toggle between automatic and manual start modes. The selected mode is shown in the status bar at the top of the machine's operating display. In manual start mode, the operator presses the (1) key to start processing notes.

In automatic start mode, the machine starts processing notes when it detects notes in the feed hopper. Pressing the (1) key subsequently stops and restarts the machine.

## Counting speed

Touch the Counting Speed button to step through the processing speeds available for the current counting mode. The speeds may include 800, 1000, 1200 and 1300 notes per minute. The selected speed is shown in the status bar at the top of the machine's operating display.

## Note

- Only speeds available for the current counting mode are shown.
- 1300 notes per minutes is available only in PCS mode.

You may need to select different speeds for different currencies and notes. In general, the machine can count faster than it can sort and it can process notes in good condition faster than notes in poor condition. In fitness modes (GFS-220F only), the maximum speed is typically 1000 notes/minute.

## Batch mode

Batch Mode enables you to set a Count or Value of notes to be treated as a batch. The machine will continue to add notes to the batch until the specified count or value is reached, at which point it pauses until the stacker pocket is emptied.
If the operator removes the notes from the stacker pocket before the batch limit has been reached, the machine displays a Batch is not complete! message. The operator has to touch the OK button to cancel the message, at which point the machine resumes counting from zero when notes are added to the feed hopper.
If the operator does not remove the notes from the stacker pocket and continues to add notes to the feed hopper, the machine does not display the Batch is not complete! message. It continues counting from the total reached for the notes already in the stacker pocket.
The operation of Batch mode is influenced by the Auto-End Batch parameter (see page 63).
In Single counting mode, a third option, Smart, is available. This enables you to set different count (not value) limits for denominations. The appropriate limit is then used when you process each denomination. The default (and minimum) limit for each denomination is five notes.
The batch setting is retained when you change between counting modes, except when you leave
Single counting mode after using the Smart option. As this option is not available in other counting modes, Batch mode is switched off.
To specify a number or value limit:

1. Select Mode Setup from the menu.
2. Select Batch Mode.

The machine displays the Batch Mode screen, which has three or four tabs.
The Smart tab is shown only in the single denomination counting mode.
3. To switch off Batch mode:
a. Touch the Off tab.

| OFF | Count | VALUE | SMART |  |
| :---: | :---: | :---: | :---: | :---: |
|  | OFF |  |  | $\times$ |
|  | 1 | 2 | 3 |  |
|  | 4 | 5 | 6 |  |
|  | 7 | 8 | 9 |  |
|  | $C$ | 0 | OK |  |


| OFF | COUNT | VALUE | SMART |  |
| :---: | :---: | :---: | :---: | :---: |
| COUNT BATCH | 1 | 2 | 3 |  |
| 50 | $\times$ | 4 | 5 | 6 |
|  | 7 | 8 | 9 |  |
|  | $C$ | 0 | OK |  |

4. To set a count limit:
a. Touch the Count tab.
b. Touch the 0 to 9 buttons to enter a new limit.

The limit can be from 5 to the stacker pocket capacity (see page 64).
To delete a character, touch the C button.
c. Touch the OK button to set the new limit.
5. To set a value limit:
a. Touch the Value button.
b. Touch the 0 to 9 buttons to enter a new limit.

The maximum and minimum limits vary for different currencies.
To delete a character, touch the C button.
c. Touch the OK button to set the new limit.


6. To set smart limits in single denomination counting mode:
a. Touch the Smart tab.

Smart limits are displayed for each denomination.
b. Touch the denomination buttons to set a limit for a denomination.

The buttons displayed reflect the denominations available in the selected currency.
c. Touch the 0 to 9 buttons to enter a new limit.

The limit can be from 5 to 200 notes.
Smart limits are not available for values so, for example, you cannot set limits of 100 euros for $€ 5$ notes and 2000 euros for $€ 50$ notes. Instead, you would set equivalent count limits of 20 notes for $€ 5$ notes and 40 notes for $€ 50$ notes.
d. Touch the 0 K button to set the new limit.
7. To close the menu, press the $\overline{\overline{\mathrm{O}}}$ key.

The Batch limit is displayed in the status bar at the top of the screen.
In this example, a value limit of 500 euros has been selected.

| AUTO | 1000npm | UV.MG.IR | BATCH: 500 |
| :--- | :--- | :--- | :--- |

## Add mode

Note
The Grand Total configuration option must be set to Auto (see page 63).
Add mode changes the way that the machine handles totals:

- Without this function enabled, the machine provides a total of the notes counted within a single bundle. When the bundle has been counted and all pockets have been emptied, the machine clears the total ready for the next count operation.
- With this function enabled, the machine accumulates totals from multiple bundles of notes and displays a grand total. When the bundle has been counted and all pockets have been emptied, the machine adds the running total to the grand total and clears the running total.


## Configuring the machine

To use Add mode:

1. Select Mode Setup from the menu.
2. Touch the Add Mode button.
3. To close the menu, press the $\overline{\overline{\mathrm{O}}}$ key.

The word Add is displayed in the status bar at the top of the screen.
The machine displays two totals, the running total in blue and the grand total in black.

4. Select the required counting mode.
5. Process the first bundle of notes.
6. Remove the counted notes from the stacker pocket.

The total is added automatically to the grand total.
7. Process the next bundle of notes.
8. Remove the counted notes from the stacker pocket.

The total is added automatically to the grand total.
9. Repeat steps 7. and 8. for all remaining bundles of notes.

## Note

If you want to feed a bundle of notes again without adding the total from the original count to the grand total, press the (1) key before emptying the stacker pocket.
10.To view the contents of the pockets:

- Touch the button to view images of the notes in the stacker pocket.
- Touch the button to view the reasons for notes being placed in the reject pocket. When using Add mode, the totals include grand totals as well as day totals (see page 46).
Press the $\overline{\overline{0}}$ key to return to the main screen.


## Shutter

Touch the Shutter button to enable or disable the operation of the shutter.

## Language

Touch the Language button to set the language in which information is displayed and printed. The options available depend on the languages that have been installed.


Touch the appropriate button to select a language.

## Sound

Touch the Sound button to set the volume of the machine's audible warnings.


Touch the and buttons to change the volume.
Reducing the sound to minimum mutes the output.
Touch the Start, Ready, Click, Warning, Error and Critical buttons to play the various sounds emitted by the machine.

## Note

If sounds are switched off from the volume option, touching the buttons will have no effect.
Double level
The density, or thickness, of notes is used in detecting doubles. You can adjust the machine's sensitivity to suit the notes that you are processing. If you are processing mixed notes and some notes are being wrongly classified as doubles, you may need to adjust the sensitivity.
Touch the Double Level button to set the level.


Touch the - and + buttons to set the level:

- Lower numbers increase the thickness accepted as a single note (fewer notes rejected)


## Configuring the machine

- Higher numbers decrease the thickness accepted as a single note (more notes rejected).


## Key setting

The machine has four programmable function keys, $\mathbf{F 1}$ to $\mathbf{F 4}$. These provide fast access to the functions that you use most often.
The functions available are:

- Currency - selects a different currency (see page 20)
- Counting Mode - selects the counting mode (see page 21)
- Single Mode - selects the single denomination counting mode (see page 34)
- Counting Result - displays the result of the current count (see page 45)
- Reject Reason - displays the reject reasons from the totals (see page 46)
- End of Day - displays totals for the day (see page 53)
- Clear Result - clears result from display
- Key Setting - assigns functions to the function keys (this function)
- Printing Result - prints current totals
- Batch Mode - selects Batch mode (see page 48)
- Add Mode - selects Add mode (see page 49)
- Inquiry- enables bank note search by date or serial number
- Split - selects Split function.

The default key settings are:

- F1 - Currency
- F2 - Counting Mode
- F3 - Reject Reason
- F4 - End of Day.

Touch the Key Setting button to display the functions allocated to the F1 to F4 keys:


You can select functions and associated function keys in two ways:

1. Using the touch screen:
a. Touch one of the function key buttons (F1 to F4) to select the key to program.
b. Touch one of the function buttons to select the function to assign to the key.
2. Using the function keys at the right of the touch screen:
a. Press the F1 and F2 keys to move the selection arrow up and down.
b. Press the F3 and F4 keys to move through the functions available to assign.

Colours are used on screen to indicate which function is assigned to which key.

## End of Day

Touch the End of Day button to display the statistics stored in the machine's memory. This shows the number and value of each denomination in the currently selected currency that have been processed during the period shown at the top of the screen.
Statistics are available for all currencies that are loaded onto the machine.


Several actions are available:

- To show totals for the current day, rather than a date range:
- Press the (1) key to display a calendar.
- Use the F3 and F4 keys to move backwards and forwards through the available dates.
- Press the (1) key to display the totals for the highlighted date.

The machine holds day totals for the last 30 days on which it was used (not necessarily consecutive days). At midnight, it starts a new day with zero totals.

| END OF DAY |  |  |  |  |  |  |  |
| :--- | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 8-Dec-2017 |  |  |  |  |  |  |  |
| Mon | Tue | Wed | Thu | Fri | Sat | Sun |  |
| 27 | 28 | 29 | 30 | 1 | $\mathbf{2}$ | $\mathbf{3}$ |  |
| 4 | 5 | 6 | 7 | 8 | $\mathbf{9}$ | $\mathbf{1 0}$ |  |
| 11 | 12 | 13 | 14 | 15 | $\mathbf{1 6}$ | $\mathbf{1 7}$ |  |
| 18 | 19 | 20 | 21 | 22 | $\mathbf{2 3}$ | $\mathbf{2 4}$ |  |
| 25 | 26 | 27 | 28 | 29 | $\mathbf{3 0}$ | $\mathbf{3 1}$ |  |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |  |

- Press the F1 key to delete statistics.

The machine asks whether you want to delete statistics for all currencies or the just for the displayed currency.

## Note

Deleting statistics requires a supervisor passcode.

- Press the F2 key (or touch the Count heading) to toggle between totals for mixed, fit and unfit notes (available only on the GFS-220F and for currencies with fitness data loaded).


## Note

Separate statistics are held for fixed fitness (BRF/ATM) and adjustable fitness (FIT) modes.

- Press the F3 key to print statistics.

The machine asks whether you want to print statistics for all currencies (A, overleaf) or the just for the displayed currency (B, overleaf).

- Press the F4 key (or touch the Denom heading) to view totals for other currencies.

A

| ＜＜MACHINE REPORT 》＞ |  |  |
| :---: | :---: | :---: |
| Machine ID： Print Time： Date： <br> Curr：USD |  | 000001 |
|  |  | 09．01．2018 15：08 |
|  |  | 09－Jan－2018 |
|  |  |  |
| DENOH | UNIT | AHOUNT |
| \＄1 | 30 | 30\＄ |
| \＄2 | 0 | 0\＄ |
| \＄5 | 0 | 0\＄ |
| \＄10 | 0 | 0\＄ |
| \＄20 | 0 | 0\＄ |
| \＄50 | 0 | 0\＄ |
| \＄100 | 0 | \＄\＄ |

Curr：EUR，Counting mode：HIX

| DENOH | UNIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 120 | 600 eu |
| eu10 | 120 | 1，200eu |
| eu20 | 90 | 1，800eu |
| eu50 | 12 | 600 eu |
| eu100 | 0 | Deu |
| eu200 | 0 | Deu |
| eu500 | 0 | Deu |

Curr：EUR，Count ing mode：FIT（Fit）

| DENOH | UNIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 0 | Deu |
| eu10 | 0 | Deu |
| eu20 | 0 | Deu |
| eu50 | 0 | Deu |
| eu100 | 0 | Deu |
| eu200 | 0 | Deu |
| eu500 | 0 | Deu |

Curr：EUR，Counting mode：FIT（Unfit）

| DENOH | UWIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 0 | Deu |
| eu10 | 0 | Deu |
| eu20 |  | Deu |
| eu50 | 0 | Deu |
| eu100 |  | Deu |
| eu200 | 0 | Deu |
| eu500 | 0 | Deu |

Curr：EUR，Count ing mode：BRF（Fit）

| DENOH | UWIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 0 | Deu |
| eu10 | 0 | Deu |
| a10n | n | nal |

B

《 MACHINE REPORT 》
Machine ID：
000001 09．01．2018 15：10 09－Jan－2018 Pre

Curr：EUR，Counting mode：MIX

| DENOH | UWIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 120 | 600 eu |
| eul0 | 120 | 1，200eu |
| eu20 | 90 | 1，800eu |
| eu50 | 12 | 600 eu |
| eu100 | 0 | Oeu |
| eu200 | ， | Oeu |
| eu500 | 0 | Oeu |

Curr：EUR，Counting mode：FIT（Fit）

| DENOH | UNIT | AHOWT |
| :---: | :---: | :---: |
| eu5 | 0 | Oeu |
| eu10 | 0 | Oeu |
| eu20 | 0 | Oeu |
| eu50 | 0 | Oeu |
| eu100 | 0 | Oeu |
| eu200 | 0 | Oeu |
| eu500 | 0 | Oeu |

Curr：EUR，Counting mode：FII（Unfit）

| DENOH | UNIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 0 | Oeu |
| eu10 | 0 | Deu |
| eu20 | 0 | Oeu |
| eu50 | 0 | Deu |
| eu100 | 0 | Deu |
| eu200 | 0 | Deu |
| eu500 | 0 | Deu |

Curr：EUR，Counting mode：BRF（Fit）

| DENOH | UNIT | AHOWT |
| :---: | :---: | :---: |
| eu5 | 0 | Deu |
| eu10 | 0 | Oeu |
| el20 | 0 | Oeu |
| eu50 | 0 | Oeu |
| eu100 | 0 | Oeu |
| eu200 | 0 | Oeu |
| eu500 | 0 | Oeu |

Curr：EUR，Counting mode：BRF（Unfit）

| DENOH | UNIT | AHOUNT |
| :---: | :---: | :---: |
| eu5 | 13 | 65eu |
| eu10 | 20 | 2000 |
| a，$n$ | 15 | эnกa． |

## Information

Touch the Information button to display details of the machine's configuration.
Touch the tabs to display different kinds of information:

- Currency - list the currencies loaded, with version numbers and dates
- System - list the software installed in the machine, with version numbers and dates
- H/W - list the sensors fitted to the machine
- Machine - list the options fitted to the machine.

| INFORMATION |  |  |  |
| :---: | :---: | :---: | :---: |
| CURRENCY | SYSTEM | H/W | MACHINE |
| USD |  | vo.0.2 | Sep - 29-2017 |
| EUR |  | vo.0.1 | Sep-29-2017 |
| RUB |  | vo.0.1 | Sep-29-2017 |
| GBP |  | vo.0.2 | Sep - 29-2017 |
| AUD |  | vo.0.1 | Nov-14-2017 |
| CNY |  | vo.0.1 | Nov-14-2017 |
| SAR |  | vo.0.1 | Nov-14-2017 |
| JOD |  | vo.0.1 | Nov-14-2017 |
| TRY |  | vo.0.1 | Sep - 29-2017 |
| BRL |  | vo.0.1 | Oct-19-2017 |




## S/W update

## Note

- This option starts the Software Installer supplied with the software update.
- You can also start the Software Installer by switching off the machine, inserting the USB stick containing the Software Installer and software update, and then switching on the machine.
- Always use USB sticks of reputable brands.


## New software version

To update the software in the machine from a USB stick:

1. Format the USB stick with a FAT32 file system.
2. Copy the Software Installer and update file (*.mz) to the USB stick.

The *.mz file contains all the files associated with the update.
3. Touch the S/W Update button.

The machine prompts you to insert a USB stick:


## Configuring the machine

4. Insert your USB stick into the USB A connector at the rear of the machine (see page 70). If the machine recognises the USB stick, it displays USB stick detected.
If the machine does not recognise the USB stick, it continues to wait. In this case, try using a different USB stick for the update.
5. Wait while the Software Installer decompresses the software update.

If it does not find a valid software update file, it displays Could not find file '*.mz'. If it finds a valid software update file, it displays Decompressing package file.
When the Software Installer has finished decompressing the update, it displays this screen:

6. Touch the Start installation now button.

The Software Installer starts to install the update and displays Installing.
If you do not touch the Start installation now button, the Software Installer counts down from ten seconds and then starts the installation automatically. You can start the installation manually by pressing the Start installation now button during the ten-second countdown.
7. Wait while the Software Installer installs the software update.

The Software Installer displays a progress bar and the status of each file in the update.
When the Software Installer has finished installing the update, it displays this screen:

8. Remove the USB stick.
9. Switch the machine off and on.

You can check the new version numbers on the Information screen (see page 55).

## New screen saver graphic

The screen saver graphic is displayed while the machine is starting after being switched on and when the machine has been switched on but unused for a specified period of time (see page 62). You can upload a new graphic from a USB stick in the same way as a new software version.
The screen saver graphic must be a 24 -bit bitmap file, 480 pixels wide by 272 pixels high, and named gfs220_logo.bmp.
To load a new screen saver graphic from a USB stick:

1. Format the USB stick with a FAT32 file system.
2. Copy the Software Installer and screen saver file (gfs220_logo.bmp) to the USB stick.
3. Touch the S/W Update button.

The Software Installer runs in the same way as for a software update.
4. Remove the USB stick.
5. Switch the machine off and on.

## Supervisor menu

These options control the more technical aspects of the operation of the machine. It is important to understand the effect of any changes that are made. For this reason, access is restricted to users who have been issued with a supervisor passcode.
Touch the Supervisor button to display the Supervisor menu.
The machine asks for a passcode.
Touch the 0 to 9 buttons to enter the supervisor passcode.
The default passcode is 000000 . This should be changed from the Security option (see page 57). The machine displays the Supervisor menu.


To close the menu and return to normal operation, press the $\overline{\overline{\mathrm{V}}}$ key.

Access to the Supervisor menu remains available until after the machine is switched off. To prevent other people using the Supervisor options, switch the machine off and on again.

## Security

Touch the Security button to set or clear the passcodes.


## Passcode check

This option enables you to select whether a user passcode is required and, if so, when:

- No No user passcode required
- User User passcode required to access the User menu
- Start User passcode required to operate the machine (entered after power-up).

Touch the Passcode check button to select one of these options.

## PASSCODE CHECK



## Configuring the machine

Press the $\overline{\overline{0}}$ or (1) key to save the change.

## Note

The change takes effect when the machine is next switched on, not immediately.

## User passcode

This option enables you to specify the user passcode for the machine. There is only one user passcode.
Touch the User Passcode button to set the user passcode.

| USER PASSCODE |  |  |  |
| :---: | :---: | :---: | :---: |
| Enter passcode | 1 | 2 | 3 |
| $\square$ | 4 | 5 | 6 |
|  | 7 | 8 | 9 |
|  | C | 0 | AC |

The machine asks you to enter the passcode.

1. Enter a 6-digit passcode.
2. Enter the 6-digit passcode again as confirmation.

If the machine accepts the passcode, it displays a Save passcode message.
If the two passcodes you entered are not the same, or did not contain six digits, the machine displays a warning message:

## Passwords do not match. Please try again.

Repeat steps 1. and 2.

## Supervisor passcode

This option enables you to specify the supervisor passcode for the machine. There is only one supervisor passcode.
Touch the Supervisor button to set the supervisor passcode. From this point, the process is the same as for the user passcode (as described above).

## Engineer passcode

This option enables you to specify the engineer passcode for the machine. There is only one engineer passcode.
Touch the Engineer button to set the engineer passcode. From this point, the process is the same as for the user passcode (as described above).

## Clear passcode

This option enables you to set the user, supervisor and engineer passcodes to zero.
Touch the Clear Passcode button to reset all passcodes. The machine displays a message requesting confirmation before clearing the passcodes.

## Date \& time

Touch the Date \& Time button to set the date and time.
The time is shown in the status bar at the top of the machine's operating display.

| DATE \& TIME |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: |
| YEAR |  |  | Hour |  |  |
| - | 2017 | + | - | 13 | $+$ |
| MONTH |  |  | minute |  |  |
| - | 12 | + | - | 26 | $+$ |
| DAY |  |  | SECOND |  |  |
| - | 8 | + | - | 49 | $+$ |

Touch the appropriate + and - buttons to adjust the value of the item you want to change.
Press the $\overline{\overline{\mathrm{O}}}$ or (1) key to save the date and time.

## Interface

Touch the Interface button to set up the machine's interfaces.


To close the menu and use the new settings, press the $\overline{\bar{\sigma}}$ key.

## Storage medium

Touch the Storage Medium button to select the device on which the machine saves note images:

- USB stick (FAT32 file system)
- Micro SD card (standard SD or high-capacity SDHC types only) [optional]


If you select Off, you will not be able to save images from the counting results screen.
To close the menu and use the new settings, press the $\overline{\overline{\mathrm{V}}}$ key.

## Configuring the machine

## Printer

Touch the Printer button to set up the machine＇s printer interface．


Touch the Printing Mode button to toggle between manual and automatic modes．With manual printing，the operator has to press a programmable function key to send information to the printer．With automatic printing，the machine sends details of all notes processed to the printer．
Touch the Internal button to toggle the internal printer between On and Off．Even when fitted， the optional internal printer will not work until enabled with this option．
Touch the External button to toggle the external printer interface between On and Off．Even when connected，an external printer will not work until enabled with this option．
Touch the Footer Line button to select the number of blank footer lines to add to each print－ out．This adjusts the spacing between each report or set of results on the tally roll．Touch the button repeatedly to step through the options： 0 to 9 lines．
Touch the Printing Format button to toggle between normal，short and terminal formats．This affects counting result printouts．The short printing format gives the fastest transfer rate and is designed for use with programs running on a computer connected to the serial port．

| ＜Count Result 》 |  |  |
| :---: | :---: | :---: |
| ID：000001 |  | 09．01．2018 15：14 Curr：EUR |
| DEVOH | UNIT | value |
|  |  | 100 eu |
|  |  | 200 eu |
|  |  | 300 eu |
| 50 eu | 2） | 100 eu |
| TOTAL |  | 700 eи |


| 《 RESULT 》 |  |  |
| :---: | :---: | :---: |
| ID：00000 | 10：54 | CURR：EURO 10－Jun－2014 |
| Denom | Unit | value |
| eu5 | （ 3） | 15eu |
| eul0 | （ 4） | 40еи |
| euzo | （ 0） | 0eu |
| eu50 | 0） | оеи |
| eu 100 | 0） | оеи |
| eu200 | （ 0） | оеи |
| eu500 | （ 0） | 0еu |
| Total | （ 7） | 55 |

Touch the Baud Rate，Data Bit，Stop Bit and Parity Bit buttons to configure the external printer port to suit your external printer，touching each button repeatedly to step through the values available．The default values are：
－ 115200 baud
－ 8 data bits
－ 1 stop bit
－No parity．
To close the Printer menu and use the new settings，press the $\overline{\bar{\sigma}}$ key．

## Ethernet

Touch the Ethernet button to set up the machine's Ethernet interface, if fitted.


Touch the IP Config button to toggle between DHCP (dynamic) and Static (fixed) IP addresses. Touch the Ethernet Setup button to set up the following parameters:

- Local and remote IP addresses
- Local and remote port numbers
- Subnet address
- Gateway address

If you have selected DHCP, you cannot assign static local IP, subnet and gateway addresses.
To close the menu and use the new settings, press the $\overline{\overline{\mathrm{J}}}$ key.

## ID setting

This enables you to assign a unique identification number to the machine. This is displayed when the Information option is selected (see page 55). It is also included on information sent to a printer or computer if one is connected.
Touch the ID Setting button to enter an ID:
ID SETTING

| Enter set ID | 1 | 2 | 3 |  |
| :---: | :---: | :---: | :---: | :---: |
| 000000 | $\times$ | 4 | 5 | 6 |
|  |  | 7 | 8 | 9 |
|  | $C$ | 0 | OK |  |

Use the 0 to 9 buttons to enter a six-digit identifier.
Touch the OK button or press the $\overline{\overline{\mathrm{v}}}$ key to save the identifier.

## Configuring the machine

## Screen saver

This enables you to display a graphic when the machine is switched on but not in use. You can also set the period of inactivity after which it appears. The period starts from the last key pressed or note processed.
The screen saver graphic is also displayed while the machine is starting after being switched on. You can upload a new screen saver graphic in the same way as a software update (see page 55). Touch the Screen Saver button to manage the screen saver.


Touch the Off button to disable the screen saver.
Touch one of the other buttons to set the time after which the screen saver is displayed:

- 10 seconds
- 20 seconds
- 30 seconds
- 1 minute
- 5 minutes
- 10 minutes
- 30 minutes
- 60 minutes.

To close the menu and use the new settings, press the $\overline{\overline{\mathrm{J}}}$ key.

## CF Detect

Touch the CF Detect button to enable and disable the authentication detectors. Enabled detectors are shown in green and disabled detectors in red; the OCR detector below is disabled.


Touch the UV/FL button to enable and disable the ultraviolet/fluorescent detector.
Touch the MG button to enable and disable the magnetic detector.
Touch the IR button to enable and disable the infrared detector.
Touch the OCR button to enable and disable the optical character recognition detector.
To close the menu and use the new sensor settings, press the $\overline{\overline{\text { o }}}$ key.
The enabled detectors are shown in the status bar at the top of the machine's operating display.

Disabling a detector prevents the machine from detecting notes that lack security features of that type. The detectors must be enabled for authenticating notes and for assessing the fitness of notes.

## Setup

Touch the Setup button to set up the machine's operating parameters.
Press the F1 and F2 keys to move between the two pages of parameters, or touch the green arrows displayed on the screen.
Press the F3 and F4 keys to move between parameters.


## ATM Mode (GFS-220F only)

This option determines whether the fixed fitness (ATM or BRF) mode is available.
Touch the ATM Mode key to toggle between On (both fixed and adjustable fitness modes) and Off (only adjustable fitness mode).

## Auto-End Batch

This option determines whether the Batch not complete! message is cleared automatically. Touch the Auto-End Batch button to toggle between On (message is cleared when the operator adds more notes) and Off (the operator must touch the OK button to clear the message).

## Auto Parameter

This option enables the threshold between fit and unfit notes to be adjusted automatically to avoid fit notes being classified as unfit.
Touch the Auto Parameter button to toggle between On (threshold is adjusted automatically by the Auto-Fit Parameterisation (AFP) service function) and $\mathbf{O f f}$ (threshold is fixed).

## CMS Protocol

This option tells the machine whether to communicate with a cash management system.
Touch the CMS Protocol button to toggle between:

- On - machine must be connected to a cash management system
- Off - machine will not connect or report to a cash management system
- Auto - no data is sent to the computer unless the user is logged into the cash management system (default).


## Dual usage

This option enables the machine to provide customised working environments for two users. Users can have their own settings for currency, counting mode, batch mode, start mode, counting speed, language, sound, detect sensors, double level and CFD sensitivity.
Touch the Dual Usage button to toggle between On (two users) and Off (one user).

## Grand Total

Touch the Grand Total button to toggle between Auto or Manual.
When you are using Add mode and Grand Total is set to Auto, the grand totals are updated automatically when notes are removed from the pockets.

## Message time

This option determines how long messages displayed by the machine remain on the screen.
Touch the Message Time button to toggle between 1, 2, 3, 5, 10 and 20 seconds.

## Reject image

This option determines whether detector image data is displayed for notes placed in the stacker or reject pocket.
Touch the Reject Image button to toggle between On and Off.

## Note

This is a criteria required for the European Central Bank.

## LCD capture

This option enables you to save an image of the display screen to a USB stick by pressing the left (1) key (see page 79). It is always set to Off when the machine is switched on.
Touch the LCD Capture button to toggle between On and Off.

## Pocket capacity

Touch the Pocket Capacity button to set the capacity of the stacker and reject pockets. If you are processing notes that are damaged or thicker than normal, you may need to reduce the capacity. You may set the stacker pocket capacity to create bundles of a specific number of notes (you can also do this using Batch mode (see page 48).

| POCKET CAPACITY |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Stacker | reject | 1 | 2 | $\times$ |
| 200 | 50 |  |  | 3 |
| ( 5 ~ 250 ) | ( 5 ~ 100 ) | 4 | 5 | 6 |
|  |  | 7 | 8 | 9 |
|  |  | C | 0 | OK |


| POCKET CAPACITY |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: |
| Stacker | Reject |  | 200 | $x$ |
| 200 | 50 | 1 | 2 | 3 |
| ( $5 \sim 250$ ) ( $5 \sim 100$ ) |  | 4 | 5 | 6 |
|  |  | 7 | 8 | 9 |
|  |  | C | 0 | OK |

Touch the Reject or Stacker buttons to select a pocket to adjust.
Touch the numeric buttons to select the number of notes and touch OK to save it.

## Reject control

This option determines whether the machine feeds notes more slowly when the reject pocket is nearly full. When it is set to Off, the machine may overrun by a few notes. When it is set to On, the machine feeds one note at a time when the pocket is nearly full.
Touch the Reject Control button to toggle between On and Off.

## Save S/N

This option determines whether note images, counting results, serial numbers and machine information are saved to the selected storage medium (see page 59), PC or machine memory Touch the Save S/N button to select:

- Medium(XLSX) - Outputs serial number data to Excel spreadsheet
- Medium(TXT) - Outputs data to text file for machine internal use
- Memory(IN) - Saves serial number data to machine memory
- PC(SN) - Outputs serial number data to PC using GSV (viewer program)
- PC(SN+IMAGE) - Outputs serial number and bank note image data to PC using GSV (viewer program).


## Note

Serial numbers can be saved as text only when optical character recognition is enabled (see page 21).

## Sort

This option controls the order in which note denominations are displayed and printed in counting results and totals. For example, selecting $1<9$ when processing euro notes will mean that lists start with $€ 500$ notes and end with $€ 5$ notes.
Touch the Sort button to toggle between $\mathbf{1} \boldsymbol{9}$ (lowest to highest) and $\mathbf{1 < 9}$ (highest to lowest).

## Split display (GFS-220F only)

This option enables the operator to separate unfit notes from other rejected notes. This is part of the 'virtual pocket' principle that enables a 1.5-pkt machine to provide fitness sorting (see page 36 ). Fitness sorts are faster with this option set to $\mathbf{O f f}$, so you may prefer to enable it only when you have a batch of unfit and rejected notes to process.
Touch the Split Display button to toggle between Off, Both, BRF and FIT.

## 1000 separator

This option determines how thousands are displayed.
Touch the 1000 Separator button to toggle between "' (space), '.' (full stop) and ",' (comma).

## Blacklist

Blacklist enables serial numbers of Suspect/CF notes to be entered into the machine's memory. When notes are processed that match the numbers on the blacklist the notes will be rejected.

## Note

OCR must be enabled for Blacklist to function.

## Addition

Enables Manual Data Addition to all currency modes except "MIX" currency mode.
Touch the display and then press the help icon (?). Select the function key assigned to
Addition and select the denominations to be added manually.


## PCS

Select this option to disable PCS from currency mode.

## CFD sensitivity

This option adjusts authentication detector sensitivity for denominations in each currency available on the machine. Sensitivity is entered as a value from 00 (off) to 30 (most sensitive), with two exceptions:

- The OCR detector has a value from 0 to the number of digits in the serial number, which varies with denomination and currency. The setting determines how many digits must match in the left and right serial numbers.
- The Corner detector tells the machine whether to reject notes that have corners missing, using information from the IR detector. It has two values, On and Off.
- The Hologram detector tells the machine whether to classify notes without a hologram as unfit or counterfeit. It has two values, On and Off.
- The Tape detector tells the machine whether to reject notes that have been taped, using information from the tape detector module (GFS-220F only). It has two values, On and Off.
- The DEN (denomination) option controls the routing of notes and has three possible values:
- ST - stacker pocket
- RJ - reject pocket
- UF - unfit

So, for example, you can reject a specific denomination from an otherwise mixed sort or you can classify earlier issues of denominations as unfit.
Touch the CFD Sensitivity button to select this option.

You will be prompted for a Supervisor passcode to access this option.
Press the F1 and F2 keys to select a currency, or touch one of the currency tabs (for example, SAR or INR below).


The Corner, Hologram and Tape detectors are available only for specific currencies.
Touch the detector for which you want to adjust the sensitivity. The machine displays the denominations available in the currently selected currency. A letter suffix indicates the issue. To adjust the detector sensitivity for a single denomination, touch the appropriate button. The machine displays controls to enable you to adjust the detector sensitivity.
To adjust the detector sensitivity for all denominations, including those on other pages, press the F3 key.
To switch off the authentication detectors for all denominations, including those on other pages, press the F4 key.

| CFD SENSITIVITY | F2: |  |
| :---: | :---: | :---: |
| INR | AED | KWD |
| IR | BHD | CAD |
| FL | MT | UV |
| Tape | OCR |  |
| DEN |  |  |


| IR |  | F3:ALL, F4:OFF (1/2 |
| :---: | :---: | :---: |
| 65 a | $\epsilon 10 \mathrm{a}$ | $\epsilon 20 \mathrm{a}$ |
| 10 | 10 | 10 |
| 650 a | $\epsilon 100 \mathrm{a}$ | $\epsilon 200 \mathrm{a}$ |
| 10 | 10 | 10 |
| 6500 a | $\epsilon 5 \mathrm{~b}$ | $\epsilon 10 \mathrm{~b}$ |
| 10 | 10 | 10 |

You can increase and decrease the value by touching the Up and Down buttons. To restore a value to its default setting, press the Init button.
To save a setting, touch the OK button.

## Fit level (GFS-220F only)

This option adjusts fitness parameter levels at which notes are rejected as unfit in adjustable (FIT) and fixed (ATM/BRF) fitness modes. Levels are entered as values from 0 to 10, where lower numbers make it easier for notes to pass. The default value for FIT mode is 4 and for ATM/BRF mode is 7 .
The fitness parameters for which you can specify levels are:

- Soil
- Stain
- D-Ink
- Wash
- Tape
- Hole
- Tear
- Size
- Corner
- Graffiti.

Touch the Fit Level button to select this option.
The machine displays the available fitness parameters (below, left).
To view more fitness parameters, touch the green arrow.


| SOIL | F3:All, F4:OFF (1/2) |  |
| :---: | :---: | :---: |
| 65 a | $\epsilon 10 \mathrm{a}$ | $\epsilon 20 \mathrm{a}$ |
| 0 | 0 | 0 |
| 650 a | $\epsilon 100 \mathrm{a}$ | $\epsilon 200 \mathrm{a}$ |
| 0 | 0 | 0 |
| 6500 a | $\epsilon 5 \mathrm{~b}$ | $\epsilon 10 \mathrm{~b}$ |
| 0 | 0 | 0 |

To adjust a parameter, touch the appropriate button (for example, Soil).
The machine displays the denominations available in the currently selected currency (above, right). A letter suffix indicates the issue. To view more denominations, touch the green arrow. You adjust and save the parameter values in the same way as for CFD Sensitivity (see page 66). You can set different fitness parameter levels for:

- FIT and ATM/BRF modes

To move between the modes, press the F1 key while the Fit Level screen is displayed.

- Each currency for which fitness data is available

To move between the currencies, press the F2 key while the Fit Level screen is displayed.
Alternatively, touch one of the currency tabs shown above the fitness parameters.
For example, touching INR on the screen shown above changes from euros to Indian rupees.

## Note

BRF mode is available only if ATM Mode is set to 0 (see page 63).

## Hardware options

## 8 Hardware options

## Internal printer

Some models have an optional internal printer fitted in the lower right casing.
For more information, contact your authorised Glory Global Solutions support organisation.
To fit a new roll of paper:

1. Squeeze the catches at either side of the cover (A), and pull the cover forward (B).

A


B

2. If you are replacing an existing roll, remove the old cardboard core.
3. Pull a length of paper from the new roll.
4. Place the new roll on the printer cover in the orientation shown below (C).
5. Close the printer cover, leaving a length of paper outside the printer (D) and ensuring that both sides of the printer cover are fully latched.

C


D

6. To feed more paper, press the FEED key on the printer.

The specification for the paper is:

| Type | Roll width | Roll diameter | Paper thickness | Printing side |
| :--- | :--- | :--- | :--- | :--- |
| Heat-sensitive paper | 57 mm | 30,40 or 60 mm | 0.06 mm | Outside of roll |

Do not use rolls that have the paper secured to the roll. Pulling on such paper may damage the printer.

## Remote display

Remote displays are available to enable totals to be monitored more easily. The display is connected to the machine's count data (C/D) port (see page 71 ) using the supplied cable. It draws its power from the machine through the interface.

## LED remote display

This is a seven-segment LED display that repeats the totals shown on the machine display, with counts shown on the top line of the display and values on the bottom line. It has a button on top to clear the data (A) and is supplied with a 1 m cable (B).


The dimensions of the LED remote display are:

| Width | Depth | Height | Weight |
| :--- | :--- | :--- | :--- |
| 106 mm | 37 mm | 70 mm | 130 g |

## LCD remote display

This is a 4.3-inch colour LCD display that repeats the full information shown on the machine display, not just total counts and values. It has connectors for a PC (A) and an LED display remote display (C), as well as for the machine (B).


The dimensions of the LCD remote display are:

| Width | Depth | Height | Weight |
| :--- | :--- | :--- | :--- |
| 123 mm | 50 mm | 90 mm | 181 g |

## Connecting external devices

## 9 Connecting external devices

You can connect devices to the machine using the connectors on the rear panel.


| No | Name | Use |
| :--- | :--- | :--- |
| 1 | USB A (host) | To connect a USB stick |
| 2 | USB B (device) | To connect a computer |
| 3 | Micro SD card slot | To connect a micro SD card |
| 4 | Ethernet (LAN) | To connect to a computer or network |
| 5 | RS232C (serial) | To connect a computer or external printer |
| 6 | C/D | To connect a remote display for count data |

You can download data, such as software updates and additional currencies, to the machine from a USB stick. You can upload data, such as counting results and note images, from the machine to a USB stick or a micro SD card.

Always use USB sticks and micro SD cards of reputable brands.

## Connecting a computer

You may want to send information from the machine to a computer for analysis and use in other applications, such as a cash management system (CMS).
You can connect the computer to the RS232C (serial) or USB B ports, or to the Ethernet (LAN) port if fitted.
If using the RS232C (serial) port:

- Use a 9-pin male-to-female serial cable with an additional cable (available from your authorised Glory support organisation).
- Set the communication protocol for the appropriate port on the computer to:
- Asynchronous communication
- 115200 baud
- 8 data bits
- 1 stop bit
- No parity.


## Connecting an external printer

You may want to print the information shown on the machine to an external printer. You can use any printer that supports the ESC/POS protocol.
Connect the printer to the RS232C (serial) port using a 9-pin male-to-female serial cable. Set the communication protocol for the RS232C (serial) port to suit your printer (see page 60 ).

## Connecting a remote display

You can send the number and value of notes currently being processed to an optional remote display (see page 69). This enables the operator or a bank customer to monitor the machine more easily.
To connect the remote display:

1. Plug one end of the interface cable into the socket on the rear of the remote display.
2. Plug the other end of the interface cable into the count data ( $C / D$ ) port on the rear of the machine.


## Cleaning the machine

## 10 Cleaning the machine

## Introduction

The machine needs only a few minutes of daily care to keep it operating smoothly between scheduled services. The important thing for you, as an operator, to do is to keep it clean.

## Important

- When cleaning, take care not to damage the machine. The surface of the touch screen and the detectors and sensors inside the machine should be treated with particular care.
- If large amounts of dust or dirt have accumulated on a machine, contact your authorised Glory Global Solutions support organisation for information on how to clean it without causing damage.
- Before cleaning the machine, disconnect it from the AC power supply.
- Allow the machine to dry thoroughly before reconnecting the mains supply.
- Do not attempt to remove the casings or gain access to the inside of the machine.
- Do not use cleaning fluids, alcohol or solvents.
- Do not use compressed air in cleaning: dust inhalation may pose a risk to your health and the dust is flammable; the propellant gases in aerosol blowers are combustible and potentially explosive.
- Do not permit flammable liquids to come into contact with the machine for cleaning or for any other purpose.


## Regular cleaning

This section provides guidance for your cleaning routine. The details will depend on your usage. If you process high volumes of notes, or notes that are very dirty or greasy, you will need to clean the machine more often. When cleaning shafts, rollers or other rotating parts, turn each part by hand to clean its entire surface.
You need:

- A soft-bristled brush
- Lint-free, non-abrasive cloths
- Lint-free, non-abrasive cloths that have been slightly dampened with water.


## Note

When using a damp cloth, moisten it with water but do not make it wet enough to drip. If you cannot remove soiling with water alone, mix some liquid soap with the water.

## Daily cleaning

After you finish work each day:

- Use a hand-held vacuum cleaner with a small plastic nozzle to remove dust and paper scraps from the feed hopper, pockets, upper transport, lower transport and work area.
- Wipe the touch screen and casings with a damp lint-free cloth, starting with the screen.


## Weekly cleaning

To get the best out of your machine, take a little extra time once a week to:

- Clean the detectors and presence sensors.

Use a soft-bristled brush to remove dust gently, without forcing the dust into crevices. Then use a dry lint-free cotton cloth to wipe the glass surfaces of the detectors. To prevent previously removed dirt scratching the surface, use a clean cloth, or a clean area of the cloth, for each sensor.

- Clean all rollers.

Use a damp lint-free cotton cloth to clean the surface of the rollers, turning them by hand and applying pressure. Dry the rollers with another cloth. To prevent previously removed dirt scratching the surface, use a clean cloth, or a clean area of the cloth, for each roller.

## Areas to clean

## Dust tray



## No Description

1 Dust tray

## Hopper and touch screen



## No Description

1 Contra rollers
2 Stripper rollers
3 Feed hopper sensors
4 Pickup rollers
5 Touch screen

## Cleaning the machine

## Detectors and Jam 0 sensor (upper)



No Description
1 Presence sensors (Jam 0) - upper
2 CIS - upper
3 Magnetic detector - one array and two heads
4 Tape detector - upper (GFS-220F only)
5 Ultraviolet/fluorescent detector - upper

## Detectors and Jam 0 sensor (lower)



No Description
1 Presence sensors (Jam 0) - lower
2 IR light bar
3 CIS (lower)
4 Tape detector - lower (GFS-220F only)
5 Ultraviolet/fluorescent detector (lower)

Pocket sensors and Jam 4


## No Description

1 Reject pocket sensors
2 Reject pocket prisms
3 Stacker pocket sensors (transmitters)
4 Stacker pocket sensors (receivers)

## Jam 2 and Jam 5 sensors



3

## No Description

1 Presence sensors (Jam 2 - upper)
2 Presence sensors (Jam 2 - lower)
3 Presence sensors (Jam 5 - upper and lower)

## 11 Troubleshooting

Note
If you cannot resolve a problem using the corrective action shown, or a message is not listed here, contact your authorised Glory Global Solutions support organisation for assistance.

## (!) Caution

Do not attempt to remove the casings or gain access to the inside of the machine.

## Symptoms

## Machine will not start

If the display is blank and there is no sound from the transport:

1. Check that the machine is switched on.
2. Check that the power cable is connected and seated firmly in the sockets at both ends.
3. Check that the power supply outlet is switched on.
4. Replace the power cable with another of the same type.

## Machine rejects too many notes

If you find that the number of rejects is higher than expected, check these points:

1. Make sure that you are placing the notes correctly on the feed hopper.

See "Preparing your notes" on page 18.
2. Keep the machine clean.

See "Cleaning the machine" on page 72.
3. Make sure that the feed gap is adjusted correctly.

See "Setting the feed gap" on page 41.

## Messages

The machine displays messages to tell you its status and ask you to take action. Some messages give you information and instructions. Other messages indicate the source of an error and the corrective action you should take, such as restarting the machine.

| Error title | Error code | On-screen instruction | Explanation |
| :---: | :---: | :---: | :---: |
| COVER OPEN | 0101 | Close the upper cover | The upper cover is open |
|  | 0102 | Close the lower cover | The lower cover is open |
| JAM | 0201 | Clear the upper transport and press the <Exit> key | Notes did not pass the Jam 0 sensor |
|  | 0202 | Clear the upper transport and press the <Exit> key | Notes passed the Jam 0 sensor but did not pass the Jam 2 sensor |
|  | 0203 | Clear the lower transport and press the <Exit> key | Notes did not pass the Jam 2 sensor |
|  | 0205 | Clear the lower transport and press the <Exit> key | Notes did not pass the selector |
|  | 0206 | Clear the lower transport and press the <Exit> key | Notes did not pass the Jam 4 sensor |
|  | 0207 | Clear the lower transport and press the <Exit> key | Notes did not pass the Jam 5 sensor |
| DETECTOR FAULT | 0301 | Check the encoder and press the <Exit> key | Book a service engineer |


| Error title | Error code | On-screen instruction | Explanation |
| :---: | :---: | :---: | :---: |
| $\begin{aligned} & \hline \text { CLEAR } \\ & \text { HOPPER } \end{aligned}$ | 0401 | Clear the feed hopper | Unfed notes remain in the feed hopper |
| $\begin{aligned} & \hline \text { CLEAR } \\ & \text { POCKET } \end{aligned}$ | 0601 | Remove unfit notes from the reject pocket | Unfit notes have been detected in the reject pocket |
|  | 0602 | Remove all notes from the reject pocket | Uncounted notes have been detected in the reject pocket |
|  | 0603 | Remove all notes from the stacker | Uncounted notes have been detected in the stacker pocket |
| COUNT ERROR | 0701 | Check the selector and clear the feed hopper, reject pocket and stacker pocket | Book a service engineer |
|  | 0702 | Check the selector and clear the feed hopper, reject pocket and stacker pocket | Book a service engineer |
| COMM ERROR | 0901 | Turn the power off and on | There is no response from the DIP |
|  | 0904 | Turn the power off and on | CPU1 could not be synchronised |
| $\begin{aligned} & \text { PROGRAM } \\ & \text { ERROR } \end{aligned}$ | 1001 | Update the FPGA program | The FPGA program is out of date obtain and load an up-to-date version |
|  | 1002 | Re-load the software | The Main and DIP software is incompatible - obtain and load an up-to-date version |
|  | 1003 | Re-load the software | The Main and DIP software is incompatible - obtain and load an up-to-date version |
| SENSOR <br> ERROR | 1101 | Check the upper CIS detector | Book a service engineer |
|  | 1102 | Check the lower CIS detector | Book a service engineer |
|  | 1103 | Check the UV detector | Book a service engineer |
|  | 1104 | Check the magnetic detector | Book a service engineer |
|  | 1105 | Check the tape detector | Book a service engineer |
| CALIBRATION ERROR | 1201 | Calibrate the upper CIS detector | Book a service engineer |
|  | 1202 | Calibrate the lower CIS detector | Book a service engineer |
|  | 1203 | Calibrate the UV detector | Book a service engineer |
|  | 1204 | Calibrate the magnetic detector | Book a service engineer |
|  | 1205 | Calibrate the tape detector | Book a service engineer |
| STOP | 5001 | Machine was stopped by the user | The user stopped the machine by pressing the $\overline{\overline{0}}$ key |
|  | 5002 | Machine was stopped by the Stop command | The user stopped the machine by pressing the $\overline{\overline{0}}$ key |
| CMS | 6001 | Check the connection with the host | The connection with the host has been lost |

## Troubleshooting

## Locations of presence sensors and detectors



## Sensor Description

1 Feed hopper sensor
2 Jam 0 sensor
3a CIS detector
3b CIS detector
4 Magnetic detector
5 Tape detector
6a UV detector
6b UV detector
7 Jam 2 sensor
8 Jam 4 sensor

9 Jam 5 sensor

## Role

Indicates the presence of notes in the feed hopper (reflective) Indicate a note jam in the upper transport (transmissive) Creates visible and infrared images of the upper side of notes Creates visible and infrared images of the lower side of notes Reads magnetic features of notes Detects tape by measuring note thickness (GFS-220F only) Reads ultraviolet/fluorescent features on the upper side of notes Reads ultraviolet/fluorescent features on the lower side of notes Indicates a note jam in the rear transport (transmissive)
Indicates a note jam between the selector and reject pocket (reflective)

Indicates a note jam between the selector and stacker pocket (reflective)

11 Reject full sensor
12
Stacker sensor x 3

Indicates notes are present in the reject pocket (transmissive) Indicates notes are present in the stacker pocket (transmissive)

## LCD screen capture utility

The machine has a utility that enables you to save an image of the currently displayed screen to a USB stick. This can be helpful when troubleshooting problems and when creating additional documents and training materials.
To save a screen:

1. Switch on the machine.
2. Insert a USB stick into the USB A connector at the rear of the machine (see page 70).
3. Enable the LCD Capture configuration option (see page 64).

When you save the option and exit the configuration menus,
the machine displays an LCD Capture message.

4. Navigate to the display that you want to capture.
5. Press the left (1) key.

The machine saves an image of the current display as a bitmap (.bmp) file on the USB stick.
6. Disable the LCD Capture configuration option.
7. Remove the USB stick.

## Note

- The LCD Capture message is not included in the saved image of the display.
- The LCD Capture option does not affect the machine's operation, so it can remain enabled for as long as required. However, it is always set to Off when the machine is switched on.
- When the LCD Capture option is enabled, the left (1) key cannot be used to control the machine.
- Always use USB sticks of reputable brands.


## 12 Disposal at end of life

Disposal of the machine is covered by Directive 2002/96/EC in Europe, indicated by this symbol on the label on the rear of the machine. There may be similar regulations in other countries.


To minimise risks to the environment and to public health, the machine must be disposed of through collection points designed by government or local authorities. For more information, contact your local authority, the refuse collection service or the supplier of the machine.

## For the sake of the environment

Do not put the machine into the normal refuse collection service.

## 13 List of terms and abbreviations

| Term | Definition |
| :---: | :---: |
| ATM | Automated Teller Machine; dispenses banknotes to customers |
|  | Fitness grade assigned to notes that are suitable for use in ATMs |
| BRF | Banknote Recycling Framework; the fitness standard set by the ECB |
| CIS | Contact Image Sensor; detector that generates visual images |
| Denomination | Value of a note |
| ECB | European Central Bank; sets the standard for recirculating euro notes |
| Face | Position of note; obverse or reverse side uppermost |
| Fit | Fitness grade assigned to notes that are suitable for use by human tellers |
| Fitness | A mode of sorting that uses various criteria to assess the condition of notes |
| FL | Fluorescence; some counterfeits can be detected from the fluorescence of the paper, which differs from the paper on which the genuine currency is printed |
| IR | Infrared; some security features on banknotes are visible in infrared light |
| IRR | Infrared reflective |
| IRT | Infrared transmissive |
| Issue | A version of a denomination |
| MG | Magnetic; some security features on banknotes use magnetic materials |
| OCR | Optical Character Recognition; used to read serial numbers |
| Orientation | Position of note; top or bottom edge towards note guide |
| TDM | Tape Detector Module; measures note thickness to detect tape |
| UV | Ultraviolet; genuine banknotes are manufactured on UV-dull paper. Counterfeits and washed notes may be bright. |

## 14 Specifications

## Processing capabilities

| Throughput | Paper pieces: 1300 notes/minute |
| :---: | :---: |
|  | Value: 1200 notes/minute |
|  | Fitness: 1000 notes/minute (GFS-220F only) |
| Feed hopper | Continuous feeding, capacity: 500 notes |
| Output pocket | 1 pocket, capacity 200 notes (default), 250 notes (maximum) |
| Reject pocket | 1 pocket, capacity 50 notes (default), 100 notes (maximum) |
| Modes | Mixed currencies, piece count, mixed denominations, single denomination, face, orientation, issue |
|  | GFS-220F only: fitness - fixed and adjustable |
| Currencies | Three standard, up to 37 more optional (40 in total) |
| Note type | Paper or polymer |
| Note width | 55 to 85 mm (2.17 to 3.35 inches) |
| Note length | 100 to 185 mm (3.94 to 7.28 inches) |
| Detectors/sensors |  |
| Detectors | - Ultraviolet (reflective) / fluorescent (transmissive) <br> - Magnetic (two single-channel heads and one array) <br> - Dual full-width CIS (visible and infrared images) <br> - Tape Detector Module (TDM) (GFS-220F only) |
| Presence sensors | Feed hopper, transport path (Jam 0, Jam 2, Jam 4 and Jam 5), stacker pocket, reject pocket, reject pocket full |
| Interfaces |  |
| Displays | 109 mm (4.3 inch) touch-sensitive screen Multiple language options |
| Interfaces | USB A (host) USB 2.0, USB B (device) USB 2.0, RS232 serial port Optional: Micro SD card, Ethernet |
| Ergonomics | One operator, seated or standing, working from either side of machine |
| Operating conditions |  |
| Power supply | $100-240 \mathrm{Vac}, 50-60 \mathrm{~Hz}$ |
| Power consumption | Standby 1000npm 1200npm |
|  | GFS-220 14W 70W |
|  | GFS-220F 14W 90W 100W* |
|  | * When authentication detectors are enabled |
| Noise | $<75 \mathrm{dBA}$ @ 800 notes/minute |
| Temperature | Operating: 10 to $35^{\circ} \mathrm{C}\left(50\right.$ to $\left.95^{\circ} \mathrm{F}\right)$ |
|  | Storage: $\quad-10$ to $60^{\circ} \mathrm{C}\left(14\right.$ to $\left.140^{\circ} \mathrm{F}\right)$ |
| Relative humidity | Operating: 40 to 70\%, non-condensing |
|  | Storage: 10 to 80\%, non-condensing |

## Size and weight

Machine size Height: GFS-220/GFS-220F: 316 mm , GFS-220S/GFS220FS 341mm (+46mm with notes guides fitted); width: 303 mm ; depth: 347 mm

Weight GFS-220: 12.2 kg, GFS-220F: $12.8 \mathrm{~kg}, \mathrm{GFS}-220 \mathrm{~S}: 13.0 \mathrm{~kg}, \mathrm{GFS} 220 \mathrm{FS}: 13.6 \mathrm{~kg}$ continually being developed it is important for customers to check that the information contained herein includes the latest particulars. Although every precaution has been taken in preparation of this document, the Company and the publisher accept no responsibility for errors or omissions. The Company and the publisher accept no liability for loss or damages resulting from the use of the information contained herein. This document is not part of a contract or licence save insofar as may be expressly agreed. All capabilities and capacity and throughput figures are subject to note/coin size, note/coin quality and process used. All items of technical information, advice, knowhow, drawings, specifications and other similar items communicated in this document are confidential, and shall not be disclosed to a third party without prior written consent of the publisher. "GLORY" is a trademark of GLORY Ltd. All trademarks are owned by the GLORY Limited Group of companies. © Glory Global Solutions International Limited 2019.

