

# ***Currency Validator Generation II***



## **GII-International Down Stack Installation Guide**

**Publication Number: G2M0077  
Revision A  
(Part No. 899A0011)  
1 June 2001**



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## 1. INTRODUCTION

Global Payment Technologies, Inc., welcomes you to our second generation (GII) of Currency Validators. The GII version continues our tradition of providing the very best in currency validation. Information in this guide describes the International Down Stack (IDS) configuration of our GII product line.

## 2. UNPACKING AND INSPECTION

The Currency Validator and Security Removable Cassette are sent to you packaged with sufficient cushioning material to protect the equipment during shipment. However, the shipping box or carton should be inspected for any signs of shipping damage (e.g., dents, breaks, water/moisture damage), or any evidence of general mishandling. If damage is found, file a complaint with the carrier, noting all damage, and notify *GPT* of such action. Also, retain the original shipping box and packaging material for inspection. Whenever possible, taking a photograph of the damaged area may prove useful in documenting the damage.

*GPT* ships its equipment in boxes designed to contain either a single Currency Validator (**Figure 1**) or a Currency Validator with a Security Removable Cassette and an enclosure. Additionally, bulk orders can be shipped in containers, which consist of triple wall cardboard atop standard shipping skids. This method of shipping is both economical and minimizes the amount of shipping material requiring disposal.



**Figure 1. GII-IDS Validator Head**

## **2.1 Unpacking**

To unpack the equipment, proceed as follows:

- ◆ Cut sealing tape at top of box and open the box.
- ◆ Remove all parts from the box and lay them on a clean workstation.
- ◆ Verify that all components are present before discarding the box. Refer to the packing slip, shipment breakdown label (used on cartons only), or invoice for a complete list of parts.

## **2.2 Inspection**

After the equipment is removed from the shipping box or carton, inspect the following items:

- ◆ External surfaces of the unit for signs of damage.
- ◆ Connectors for physical damage, broken or bent pins.
- ◆ Cables and accessories for physical damage, broken connectors, and broken or bent pins.

If an item is damaged, report it to the carrier and to *GPT* immediately. In addition, do not discard the shipping box and its packaging material.

## **3. PRODUCT OVERVIEW**

The International Down Stack (IDS) is a member of the GII family of Currency Validators. This unit is designed specifically for Multi-Country and Multi-Denominational currencies that are used in gaming and vending machines. The GII-IDS is engineered and shaped to fit where downward space is available.

Designed with the same features as the other models of the GII family such as fast electronic program download, high-security side-looking sensors, internal open/close bill path, and multi-spectral high security sensor suite, the GII-IDS can accept currency up to 3.35 inches (85-mm) in width.

The GII-IBS is available in two configurations (i.e., down-stack to the front and down-stack to the rear) that allows the addition of a 200- or 500-bill Security Removable Cassette.

Since GII Currency Validators are widely used in more than 40 countries, a choice of four unique channel sizes and associated stackers are available. The designations and definitions used by *GPT* for the different types of Currency Validators and/or stacker combinations are as follows:

- ◆ **Super Big Boy (SBB):** a *GPT* designation for a Currency Validator (and/or Stacker) which handles a currency with a width up to 3.35 inches (85.00 mm).
- ◆ **Big Boy (BB):** a *GPT* designation for a Currency Validator (and/or Stacker) which handles a currency with a width up to 3.06 inches (77.72 mm).
- ◆ **Canadian (CAN):** a *GPT* designation for a Currency Validator (and/or Stacker) which handles a currency with a width up to 2.77 inches (70.36 mm).
- ◆ **Standard (STD):** a *GPT* designation for a Currency Validator (and/or Stacker) which handles a currency with a width up to 2.65 inches (67.31 mm).

### **3.1 Identifying Your Currency Validator**

Every GII Currency Validator contains four labels (i.e., Part Number, Program, Serial Number, and CE/Warning) that identify the major characteristics of the unit. These labels are on the back of the unit as shown in **Figure 2**.



**Note:** An additional **WARNING** label will appear for Currency Validators that use the MDB interface protocol.

The **Part Number** label contains an alphanumeric code that identifies the model number and the date that the Currency Validator was manufactured. The alphanumeric code defines the mechanical characteristics (e.g., optics, main connector type, channel width, bezel type, input voltage). An example of a Part Number for an International Down-Stack Currency Validator is IDS-53A.



**Note:** The Part Number label has replaced the Configuration label used on earlier Currency Validators.

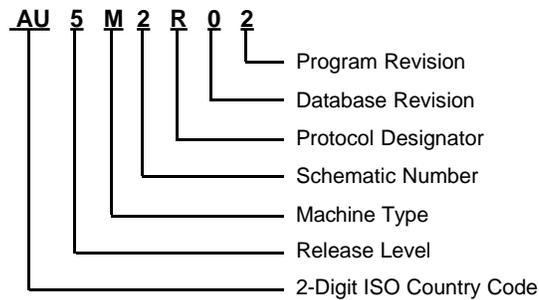


**Figure 2. Currency Validator Label Identification**

The **Program** label identifies the country and contains an 8-digit alphanumeric code that defines the software characteristics of the Currency Validator. **Figure 3** defines the numbering scheme for the 8-digit number shown on the Program label. The first two characters represent the ISO country code, and the remaining six characters specify other important operating parameters.



**Note:** If a detailed description of this matrix is required, contact Customer Service (**Section 8**) for assistance.



**Figure 3. Program Label Numbering Scheme**

**Global Payment Technologies, Inc.**

The **Serial Number** label contains a unique alphanumeric code that identifies the Currency Validator.

The **CE/WARNING** label indicates the Currency Validator complies with ETL and CETL requirements. This label also specifies the rated input power (i.e., voltage and current) that is required to safely operate the Currency Validator.

### **3.2 Communication Protocols**

*GPT* supports the various industry-standard communication protocols that are commonly used for vending, gaming, and video lottery machines. Many different types of applications have been designed into *GPT*'s Currency Validators. *GPT* has made considerable efforts to include many standard and hybrid communication protocols within the hardware and software of our Currency Validators as possible.

Listed below are the protocols available for GII Currency Validators:

- ◆ Multi-Drop Bus (MDB)
- ◆ VFM4/GL5 (Serial/Pulse)
- ◆ GL5 RS-232
- ◆ *GPT* Serial RS-232 (V1.X)
- ◆ *GPT* Enhanced Serial RS-232 (V2.X)
- ◆ *GPT* High-Level Pulse
- ◆ IGT® Foreign & Domestic.

For information pertaining to the these protocols, contact *GPT*.

## **4. INSTALLATION INSTRUCTIONS**

The Currency Validator (**Figure 4**) has as standard, a quick disconnect mounting configuration. Equipped with four mounting posts, the Currency Validator can be easily installed onto an enclosure (**Figure 5**) that can house either a 200- or a 500-bill Security Removable Cassette (SRC). The mechanical interface between the Currency Validator and the Security Removable Cassette is easily made with the use of this enclosure.

The Main Connector, located on the motor side of the Currency Validator, serves as the electrical interface between the Currency Validator and the

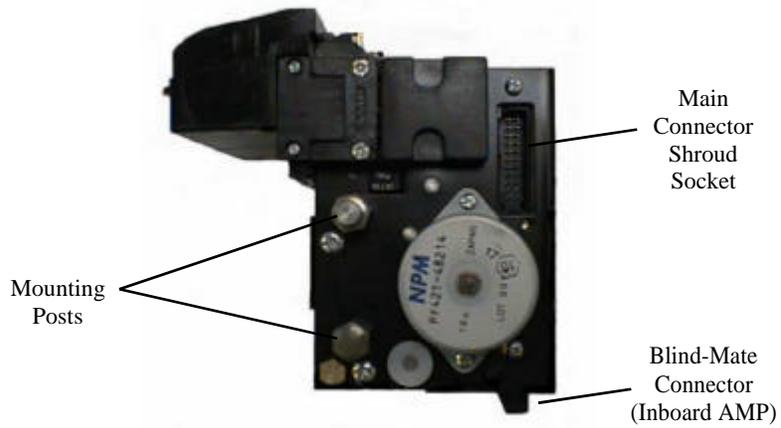


Figure 4. GII-IDS Validator Head – Motor Side View



Figure 5. GII-IDS Currency Validator  
(Shown with 500-Bill SRC)

host machine. This 24-pin connector supplies the power and data interface signals (**Figure 6**) to the Currency Validator. A separate, remotely located power supply, which can generate 24 VDC at 1 ampere, is required to operate the Currency Validator. An acceptable input voltage range is from 18 VDC to 39 VDC.



**Figure 6. Currency Validator 24-Pin Main Connector**

The electrical interface between the Currency Validator and the Security Removable Cassette is made by a blind-mate connector (i.e., inboard AMP) located at the bottom of the Currency Validator.

Removal of the Currency Validator is accomplished by simply disconnecting the electrical cable from the Main Connector Shroud Socket and dismounting the Currency Validator from the enclosure.

When the Currency Validator requires service, changes to the setup can be made via the 10-position DIP-Switch package. To obtain the functions of each switch, refer to the Program Specification Sheet for your software application.



**Note:** If the Program Specification Sheet is unavailable, contact Customer Service (**Section 8**) for assistance.

#### 4.1 Installation Procedure for Non-MDB Configuration

The installation procedure for non-MDB configured Currency Validators is contained in this subsection. For installation of a MDB configured Currency Validator, proceed to **Subsection 4.2**.

To install a non-MDB configured Currency Validator, proceed as follows:

1. Disconnect electrical power to the host (i.e., gaming or vending) machine.
2. Ensure all DIP switches are set in accordance with the data in the Program Specification Sheet.
3. Using the appropriate hardware, secure the enclosure to the host machine.
4. Mount the Currency Validator onto the *GPT* supplied enclosure or the built-in enclosure of the host machine.



**WARNING:** PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT MAY RESULT BY APPLYING INCORRECT VOLTAGE TO THE CURRENCY VALIDATOR. ONLY APPLY VOLTAGE AS SPECIFIED ON **WARNING** LABEL (FIGURE 2).

5. Connect the *GPT*-supplied Main Connector Cable to the 24-pin Main Connector Shroud Socket, which is adjacent to the motor, on the Currency Validator.



**CAUTION:** TO AVOID DAMAGE TO THE CURRENCY VALIDATOR, DO NOT ATTACH THE HOST MACHINE'S INTERFACE-HARNESS CABLE WHILE POWER IS ON.

6. Connect the appropriate interface-harness cable from the host machine to the Currency Validator's Main Connector Cable.
7. Dress all cables to avoid interference with equipment operation.
8. Mount the Security Removable Cassette onto the enclosure and engage it to the blind-mate connector on the Currency Validator.
9. Apply electrical power to the host machine.
10. Close the door of the host machine.



**Note:** On the bezel, observe that each pair of green LEDs are flashing sequentially at 4 Hertz. If LEDs are not flashing, or the red LED is lit, proceed to Troubleshooting (**Section 7**).

11. The Currency Validator is operational and ready to accept currency.

#### 4.2 Installation Procedure for MDB Configuration

To install a MDB configured Currency Validator, proceed as follows:

1. Disconnect electrical power to the host (i.e., gaming or vending) machine.
2. Ensure all DIP switches are set in accordance with the data in the Program Specification Sheet.
3. Using the appropriate hardware, secure the enclosure to the host machine.
4. Mount the Currency Validator onto the *GPT* supplied enclosure or the built-in enclosure of the host machine.
5. Place the MDB Cable Box into the slot of the enclosure.



**WARNING:** PERSONAL INJURY AND/OR DAMAGE TO EQUIPMENT MAY RESULT BY APPLYING INCORRECT VOLTAGE TO THE CURRENCY VALIDATOR. ONLY APPLY VOLTAGE AS SPECIFIED ON **WARNING** LABEL (**FIGURE 2**).

6. Connect the *GPT*-supplied MDB Interface Harness 24-pin connector to the Main Connector Shroud Socket, which is adjacent to the motor, on the Currency Validator.



**CAUTION:** TO AVOID DAMAGING THE CURRENCY VALIDATOR OR THE MDB INTERFACE BOX, DO NOT ATTACH THE HOST MACHINE'S INTERFACE-HARNESS CABLE WHILE POWER IS ON.

7. Connect the appropriate interface-harness cable from the host machine to the applicable MDB Interface Harness connector (i.e., 6-pin male or 6-pin female plug).
8. Dress all cables to avoid interference with equipment operation.
9. Mount the Security Removable Cassette onto the enclosure and engage it to the blind-mate connector on the Currency Validator.
10. Apply electrical power to the host machine.
11. Close the door of the host machine.



**Note:** On the bezel, observe that each pair of green LEDs are flashing sequentially at 4 Hertz. If LEDs are not flashing, or the red LED is lit, proceed to Troubleshooting (**Section 7**).

12. The Currency Validator is operational and ready to accept currency.

## 5. VIDEO-LEVEL ADJUSTMENT PROCEDURE

The Video-Level Adjustment (VLA) procedure is used to test the performance of the optical sensor system. Using a VLA Card only, the service technician can calibrate the optical sensing circuitry (i.e., optics, Digital-to-Analog and Analog-to-Digital converters) to optimum levels. Because the paper densities are different for each VLA Card, measurements are taken 16 times (stepping action), and the average value is computed for each photo-element.

The VLA Procedure is one of the most important maintenance actions that can be performed on the Currency Validator. This procedure must be performed:

- ◆ After the Currency Validator is disassembled and reassembled.
- ◆ After the optics are cleaned.
- ◆ After a new program is loaded.

### 5.1 Required Items

- ◆ Video-Level Adjustment Card (*GPT* PN 65902)
- ◆ Small, non-conductive screwdriver.

### 5.2 VLA Procedure

To optimize the performance of the Currency Validator, proceed as follows:

1. Power down the Currency Validator.
2. Set DIP Switch 9 (**Figure 7**) to the **ON** position (i.e., down towards the numbers).



#### Notes:

1. Ensure DIP Switches 7 and 8 are set to the **OFF** position (i.e., up and away from the numbers). Otherwise, the Currency Validator will enter the Download Mode.
2. DIP Switch 9 is used for servicing the Currency Validator. All other DIP switches are set to the specific application program and **SHOULD NOT** be changed during this procedure.

3. The DIP-switch settings shown in **Figure 7** do not represent any particular setup or application. Refer to the Program Specification Sheet to obtain the DIP-switch settings for your particular software configuration.



**Figure 7. DIP Switches**

4. When the DIP-switch settings are changed, the new switch settings will not take effect until after power is removed and then reapplied to the Currency Validator. If the new switch settings have no effect, then the Memory Erase Procedure (RAM Clear) must be performed (refer to the **GII Service Manual**, Publication Number G2M9003).

3. Power up the Currency Validator.
4. Insert the Video-Level Adjustment Card.



**CAUTION:** DIP Switch 9 must be set to the **OFF** position within 15 seconds after the VLA Card is ejected. Otherwise, the Currency Validator will begin the Memory Clear Routine. This routine will erase all custom configuration data, which is stored in the Currency Validator's memory, and render the unit inoperative.

5. Wait for the Currency Validator to step out the VLA Card, and then set DIP Switch 9 to the **OFF** position.



**Note:** With new software installed, the VLA Card will move forward into the currency channel until the leading edge of the card activates the Rear Flag Sensor. The VLA Card will then be moved back out of the channel, until it clears the main optical array. This movement process is repeated once. After the second entry is completed, the VLA Card is stepped back out of the channel.

6. Power down the Currency Validator.
7. Return all DIP switches to their normal positions per the Program Specification Sheet.
8. Return the Currency Validator to service.

## 6. BEZEL DISPLAYS

The bezel of the Currency Validator can communicate diagnostic information and host machine status to service personnel through lighted LED display patterns. Dependent upon the protocol used, the bezel can display the current state of the Currency Validator and the status of the host machine.

The sample bezel displays in this section represent programmed patterns for the MDB protocol. The various display patterns, which may vary dependent upon your specific program, indicate the stages of the bill verification process and denotes when an equipment malfunction has occurred.

On power up, the Currency Validator performs a self-test routine. If the unit is operational, the bezel shows a runway light pattern (i.e., Idle State, refer to **Subsection 6.1**). However, if a malfunction is detected, a self-diagnostic error display will occur as described in **Subsection 6.2**.



**Note:** Performance data, detailed and historical, is available through RS-232 communication and/or the Soft Drop Analyzer.

### 6.1 Displays for Normal Equipment Operation

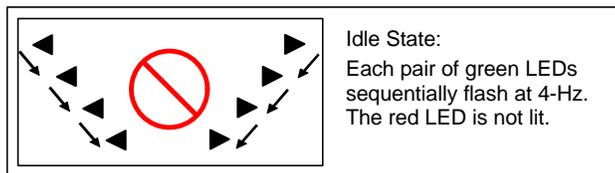
As the bill moves through the Currency Validator, light patterns are displayed on the bezel that identify the current state of the unit. Shown below are the light patterns and their associated Currency Validator states for normal equipment operation.



**Note:** The lit, green LEDs are represented by the solid, triangular-shaped symbols.

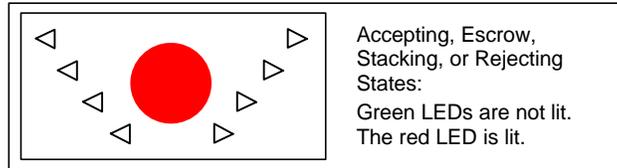
#### ◆ Idle State

The Currency Validator is operational and ready to accept a bill.



◆ *Accepting State*

A bill is inserted into the Currency Validator. The front sensor is activated and the red LED is lit. The unit is accepting data and evaluating the bill to determine if it is valid.



◆ *Escrow State, Stacking State, and Rejecting State*

When the Currency Validator enters the Escrow, Stacking or Rejecting State, the light pattern shown above is displayed. For definitions of these states, refer to the **GII Service Manual**, Publication Number G2M9003.



**Note:** If an equipment malfunction occurs, the Currency Validator will not accept the bill (**Subsection 6.2**).

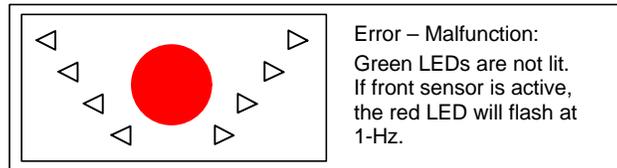
## 6.2 Self-Diagnostic Error Displays

Besides the display patterns shown in **subsection 6.1**, the Currency Validator provides self-diagnostic error displays when an equipment malfunction occurs. The most common types of errors appear below. For corrective actions, refer to Troubleshooting (**Section 7**).



**Note:** For detailed Troubleshooting and Corrective Action, refer to **GII Service Manual**, Publication Number G2M9003.

◆ Any one of the following conditions can cause this display:

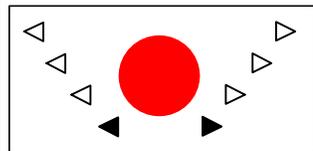


(1) A bill is inserted in the channel but does not advance into the channel.

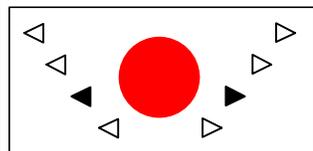
(2) Stacker is not connected to the Currency Validator and Stacker Required Mode is enabled.

(3) The Currency Validator is operational but has been inhibited (i.e., Inhibited State) from accepting bills. This condition can be caused by an inhibit command issued by the controller or a communication failure between the equipment.

- ◆ Bill jams in the channel – middle sensor is covered.

 A diagram showing a central red circle surrounded by eight white triangles pointing outwards. The top row has four triangles, the middle row has two, and the bottom row has two.	<p>Error – Currency Validator: If front sensor is active, fourth row of green LEDs are lit and red LED is flashing at 1-Hz; if front sensor is not active, all LEDs are not lit.</p>
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- ◆ Stacker is jammed or full.

 A diagram showing a central red circle surrounded by eight white triangles pointing outwards. The top row has four triangles, the middle row has two, and the bottom row has two.	<p>Error – Stacker Jammed: Third row of green LEDs are lit and red LED is flashing at 1-Hz.</p>
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## 7. TROUBLESHOOTING

The possible causes and corrective actions for malfunctions associated with the Currency Validator (**Table 1**) and the Stacker (**Table 2**) appear in this section. If corrective actions fail to resolve the problem, contact Customer Service (**Section 8**).



**Note:** For detailed troubleshooting information, refer to **GII Service Manual**, Publication Number G2M9003.

**Table 1. Currency Validator Troubleshooting Chart**

Symptom	Possible Causes	Corrective Actions
Currency Validator is not working; bezel LEDs are not lit.	External power is not applied to the Currency Validator (+24 VDC, GND).  Damaged connector and/or pins on the Main Connector.	Verify that the 24 VDC and ground are connected to the appropriate pins on the Main Connector ( <b>Figure 6</b> ).  Check for bent, missing or damaged pins on the Main Connector.
At power up, stepper motor turns 5 times and then stops.	Front and/or rear flag sensors are blocked, dirty or damaged.  Rear flag is stuck.	Clean both front and rear flag sensors, and check that sensors are not blocked, misaligned, or physically damaged.  Check that the rear flag assembly does not hang along its path. Also, check that the spring returns the flag to its original position. If necessary, clean the rear flag spring.
Bills continually jam in the channel.	Drive belt(s) and/or pressure rollers are dirty, damaged or loose.  Foreign object(s) is in the channel.	Clean the drive belts and pressure rollers; check drive belt(s) for damage and for proper tension.  Remove foreign objects from the channel; ensure channel is free of all debris.

**Table 1. Currency Validator Troubleshooting Chart (Contd)**

Symptom	Possible Causes	Corrective Actions
Bezel displays invalid or random information.	Bezel plate circuitry failure.	Check the bezel plate circuitry (DAC, inverters, and LEDs).  <b>Note:</b> The bezel should display the runway light pattern when Currency Validator is in idle state (i.e., ready to accept currency).
	Program is corrupted.	Reload Currency Validator program.

**Table 2. Stacker Troubleshooting Chart**

Symptom	Possible Causes	Corrective Actions
Stacker malfunctions.	Stacker entry slot is blocked by the pusher plate.	Check the Stacker's entry slot for possible damage and/or blockage. Also, check slide guide for damage.
	Stacker may be full.	Empty the Stacker.
Bills jam in Stacker.	Dirty bill guides or foreign objects in the Stacker.	Clean the bill guides; remove foreign objects.
Currency Validator reports a stacker jam but bill is not jammed in Stacker.	Pusher plate sensor is damaged (pusher plate does not return to the top-most position).	Replace the Stacker.

## **8. REQUESTING SERVICE**

When calling for service, have the following information ready so that a *GPT* Customer Service associate can quickly assist you. Refer to the Company Directory (**Subsection 8.1**) for the nearest *GPT* Service Center in your area.

- ◆ Serial number (**Figure 2**)
- ◆ Part number or configuration number (**Figure 2**)
- ◆ Program revision number (**Figure 3**)
- ◆ Self-Diagnostic Error Displays (**Subsection 6.2**) or a description of the problem.

### **8.1 Company Directory**

#### **Global Payment Technologies, Inc.**

General Information: **1-800-472-2506**

#### *E-Mail Addresses*

Sales Information: **sales@gptx.com**  
Customer Service: **customerservice@gptx.com**  
Technical Support: **techsupport@gptx.com**

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#### **Global Payment Technologies, Inc.**

##### **Corporate Headquarters**

425B Oser Avenue  
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USA  
Tel : +(631) 231-1177 or 1-800-472-2506  
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#### ***GPT Las Vegas***

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3068 East Sunset Road, Suite 3  
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USA  
Tel : +(702) 597-9660  
Fax : +(702) 597-9663

**8.1 Company Directory (Continued)**

**Global Payment Technologies**

**Australia, (Pty.) Ltd.**

844 Pacific Highway

Gordon, N.S.W. 2072

Australia

Tel : 612-9499-3100

Fax : 612-9499-3048

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**Global Payment Technologies, Ltd.**

**Europe**

29 Park Royal Metro Centre

Britannia Way, London NW10 7PA

England

Tel : 44-208-961-6116

Fax : 44-208-961-6117

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**Global Payment Technologies Holdings (Pty.) Ltd.**

**South Africa**

Unit 26, The Woodlands

Western Services Road, Woodmead

South Africa

Tel : 27-11-804-5025

Fax : 27-11-804-5026

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**Notes:**

**GLOBAL PAYMENT TECHNOLOGIES, INC.  
LIMITED WARRANTY PROVISION**

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**Product Line Warranty Table**

<b>Product Line</b>	<b>Warranty Period</b>
All Generation II (GII) and Generation II+ (GII+) Validators, and Security Removable Cassettes (SRC)	One (1) year parts and labor from the date of shipment of goods from <i>GPT's</i> factory.
Repaired Products (In-Warranty)	90 days or the remainder of the standard warranty period, whichever is longer. This period is from the date of shipment of goods from <i>GPT's</i> factory.
Repaired Products (Out-of-Warranty)	90 days from the date of shipment of goods from <i>GPT's</i> factory.

***Global Payment Technologies, Inc.***



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