

JCM[®] TRAINING OVERVIEW GEN5[™] Printer

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GEN5™ Printer

Table of Contents

	Page
Overview	3
GEN5 Printer Unit	3
Component Locations	4
Component Names	4
DIP Switch Settings	4
Cleaning Procedures	5
Cleaning Card Procedure	8
GEN5 Communications	9
Disabling The Ticket Low Sensor	9
Printing a Configuration Ticket	10
JCM Printer Basic Driver	11
About GEN5 Firmware	13
GEN5 Firmware Identification	13
GEN5 Firmware Identification (IGT)	13
USB Firmware Types	13
Using the JCM DFU Downloader	14
BlueWaveDX Tool Download	16
Setup for the BlueWaveDX Tool.....	16
Updating Firmware Using the BlueWaveDX Tool.....	16
Bezel LED Indications	17
Status LED Indications	17
Error Conditions	18
Maintenance Equipment	19
Personal Notes and Comments.....	20

OVERVIEW

This training course addresses the following JCM GEN5 models:

Table 1 GEN5 Printer Versions

Device	Version Difference
PSA-66-ST5	RS-232, Netplex, USB



NOTE: The GEN5 protocol is configured with Firmware. The firmware determines the protocol and speed.

GEN5 PRINTER UNIT

Figure 1 illustrates the GEN5 Printer Unit.



Figure 1 Typical GEN5 Printer Unit



NOTE: For GEN5 Printer Component Locations, refer to page 4.

COMPONENT LOCATIONS

COMPONENT NAMES

Figure 2 illustrates the GEN5 Component Names and Locations.

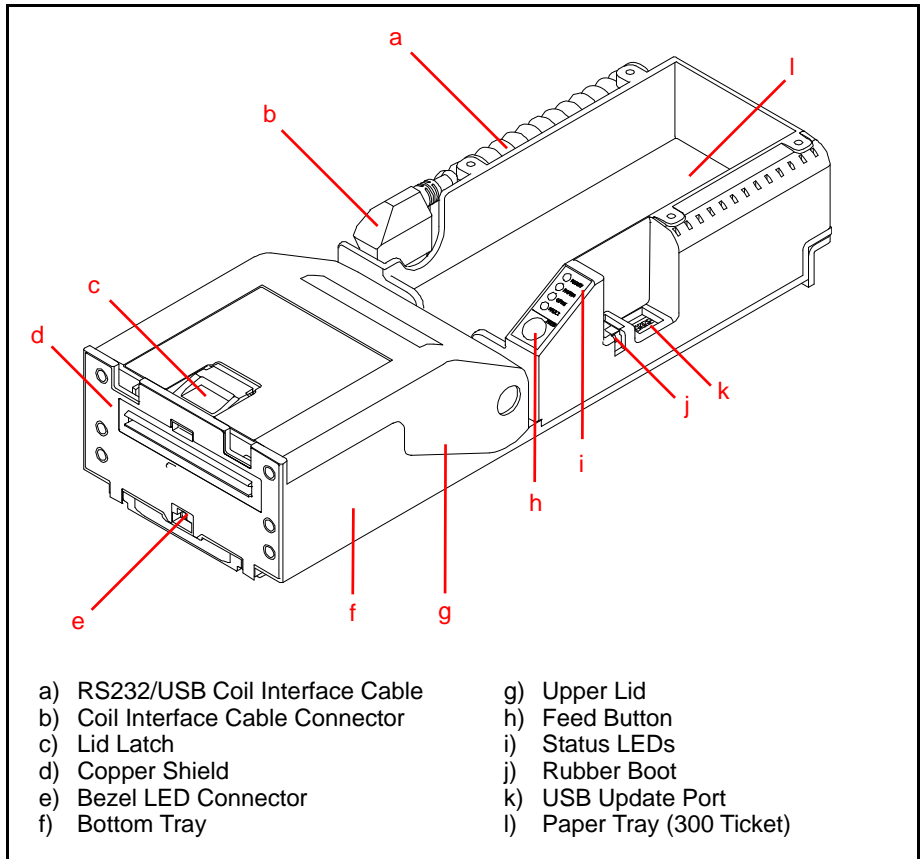


Figure 2 GEN5 Printer Component Names

DIP SWITCH SETTINGS

The GEN5 Printer includes six (6) DIP Switches, located under the rubber boot (Figure 2 j) adjacent to the USB Update Port (Figure 2 k). The DIP Switches are used to set operational parameters, and vary by manufacturer.



NOTE: To verify the correct DIP Switch settings for the GEN5 Printer Unit, refer to the Software Information Sheet for the Manufacturer and installed Firmware version.

CLEANING PROCEDURES

Regular cleaning of the GEN5 Printer Unit will help promote optimum printer performance. Indications that the Printer may require cleaning include:

- Frequent paper jams
- Partial print output
- Light print quality



NOTE: JCM strongly recommends a thorough cleaning of the GEN5 Printer at least once per year. Additional cleanings may be indicated, depending on environmental conditions where the GEN5 Printer is installed (e.g., smoke-filled or dusty environments).

The JCM Printer Cleaning Kit (P/N 350-00292-100) is recommended for best results cleaning the GEN5 Printer. The Cleaning Kit (Figure 3) includes Alcohol Wipes, Cleaning Swabs, and feed-through Cleaning Cards.

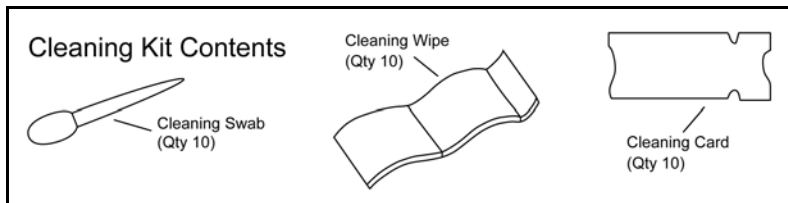


Figure 3 JCM Printer Cleaning Kit (P/N 350-00292-100)



NOTE: GEN5 Printer Sensor Cleaning Methods are listed in Table 2 below. Refer to Figure 4 on the following page for Sensor locations.

Table 2 GEN5 Printer Sensor Cleaning Methods

Symbol	Sensor Type	Cleaning Method
a	Printer Tray (Drawer Open)	Wipe clean with an alcohol swab.
b	Ticket Low (Paper Low)	Wipe clean with an alcohol swab.
c	Paper Out (Index Mark)	Blow clean with compressed air.
d	Lid Open	Wipe clean with an alcohol swab.
e	Ticket Taken Sensor	Wipe clean with an alcohol swab.

To clean the GEN5 Printer, use the following procedure:

1. Press the Lid Latch (refer to Figure 2 c on page 4) to open the Printer Lid.
2. Use a cleaning swab dampened with Isopropyl Alcohol to wipe clean the following Sensors (refer to Figure 4 on page 6):
 - Printer Tray Sensor (Figure 4 a)
 - Ticket Low Sensor (Figure 4 b)
 - Lid Open Sensor (Figure 4 d)
 - Ticket Taken Sensor (Figure 4 e)
3. Use non-flammable Compressed Air to clean the Paper Out (Index Mark) Sensor (refer to Figure 4 c on page 6).

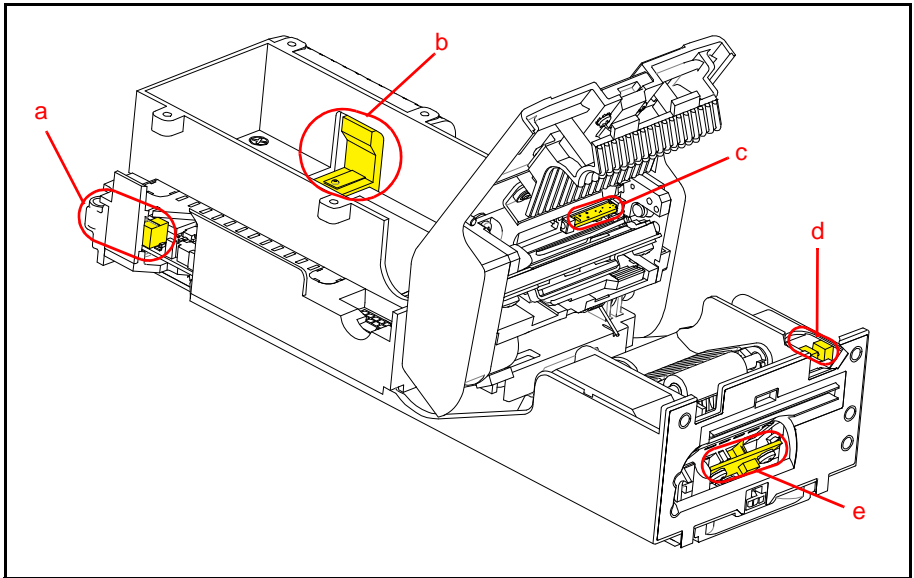


Figure 4 GEN5 Printer Sensor Locations

4. Rotate the Print Head Release Lever (Figure 5 a) leftward, then gently press down on the Lever to lower the Print Head.

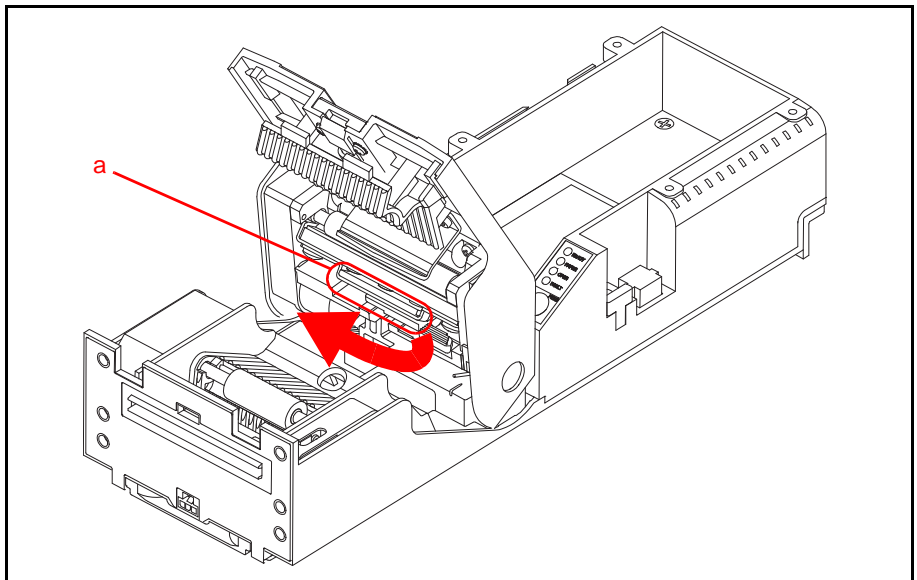


Figure 5 GEN5 Print Head Release Lever

5. Wipe the Print Head surface clean using a new cleaning swab (refer to Figure 6 a on page 7).

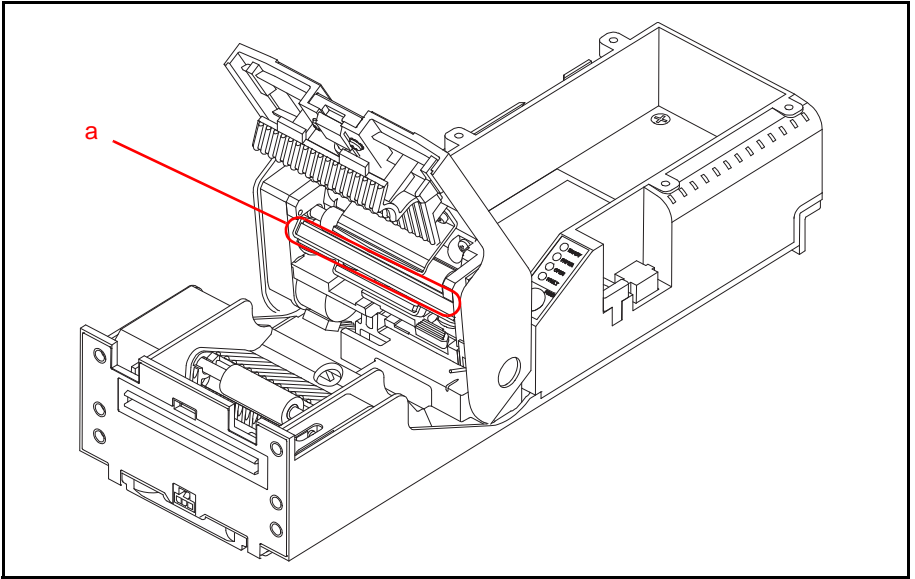


Figure 6 Clean Print Head

6. To clean the Print Head Rollers (Figure 7 a) and the Presenter Assembly's Feed Rollers (Figure 7 b), turn the Rollers by hand while wiping them with a new Cleaning Wipe or a clean Microfiber cloth (slightly dampened with Isopropyl Alcohol).

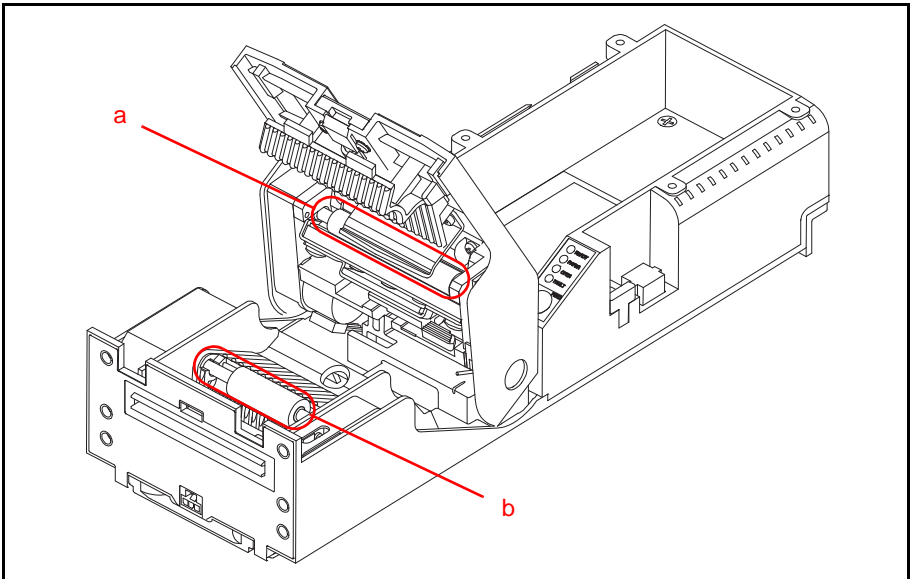


Figure 7 Clean Print Head Rollers and Feed Rollers

CLEANING CARD PROCEDURE

The Cleaning Card can be used for a quick cleaning of the GEN5 Print Head and Paper Path.



NOTE: Make sure the Printer's Power Supply is properly connected.

To use the Cleaning Card, follow this procedure:

1. Open the EGM service door.
2. Pull the Printer out of the EGM on its Sliding Base.
3. Remove the Ticket Stock from the Paper Tray (Figure 8 a).
4. Remove the Cleaning Card from its protective packaging.
5. Insert the Cleaning Card into the Ticket In Slot (Figure 8 b). It will automatically load in the proper position.
6. Press and hold the Feed Button (Figure 8 c) to feed the Cleaning Card through the Printer's Paper Path.
7. Carefully remove the Cleaning Card from the Printer's Ticket Out Slot.



NOTE: Each Cleaning Card is intended for single use only. Always use a new Cleaning Card for each cleaning cycle.

8. Feed 2 or 3 Tickets through the Printer to remove Alcohol residue before reloading Ticket Stock into the Paper Tray.

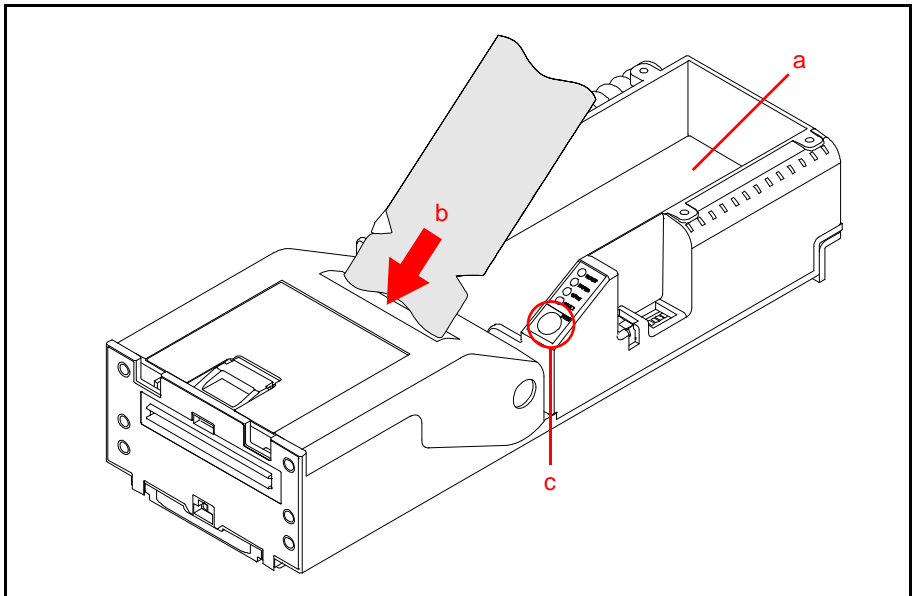


Figure 8 Feed Cleaning Card into Ticket In Slot

GEN5 COMMUNICATIONS

The GEN5 Printer Communication Speeds for RS-232 or Netplex are generally set by the Firmware download. The Printer communications can also be set by DIP Switch settings. If the Communications Baud Rate and/or Handshaking settings need to be changed, refer to the Software Information Sheet (SIS) for the correct DIP Switch Settings.



NOTE: Software Information Sheets are available in the Support section of the JCM Global website at www.jcmglobal.com.

DISABLING THE TICKET LOW SENSOR

To disable the GEN5 Printer's Ticket Low Sensor, proceed as follows:

1. Pull the Ticket (Figure 9 a) out of the GEN5 Printer Ticket In Slot (Figure 9 b).
2. Press the Upper Lid Release Lever (Figure 9 c) toward the rear of the GEN5 Printer to open the Upper Lid.
3. Place the GEN5 Printer in a "Paper in Chute" condition. To do so:
 - a) Cover the Ticket Taken Sensor (refer to Figure 4 e on page 6) with a Ticket.
 - b) Close the Upper Lid.
3. Press and hold the FEED Button (Figure 9 d) for three (3) seconds.



NOTE: If the Ticket Low Sensor is enabled, the GREEN READY LED will flash three (3) times. If the Ticket Low Sensor is disabled, the RED FAULT LED will flash three (3) times.

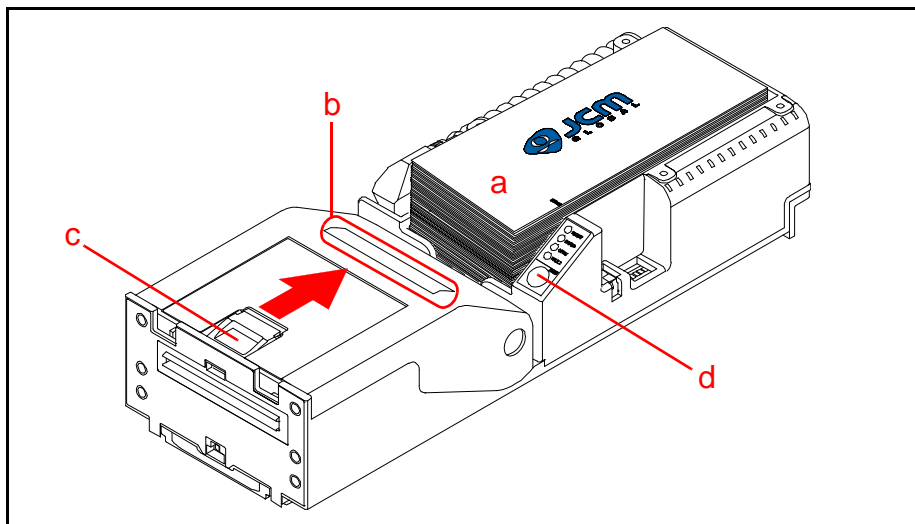


Figure 9 Disabling the Ticket Low Sensor

JCM PRINTER BASIC DRIVER

The JCM Printer Basic Driver is used to test and troubleshoot the GEN5 Printer. To test the GEN5 Printer, proceed as follows:

1. Remove power from the GEN5 Printer Unit.
2. Connect the GEN5 Printer to a PC using the Evaluation Harness DB-9 Connector.
3. Reapply power to the GEN5 Printer Unit.
4. From the PC Desktop, double-click on the JCM Printer Basic Driver icon. The JCM Printer Basic Driver Opening Screen is displayed (Figure 10).
5. Click to select the Communication Protocol - either RS-232 or Netplex Communications (Figure 10 a).



NOTE: Printers with USB Firmware will always have RS-232 Communications active.

6. Click to select the COM Port Number where the GEN5 Printer is connected (Figure 10 b). The JCM Printer Basic Driver Printer Status Section is displayed (refer to Figure 11 on page 12).

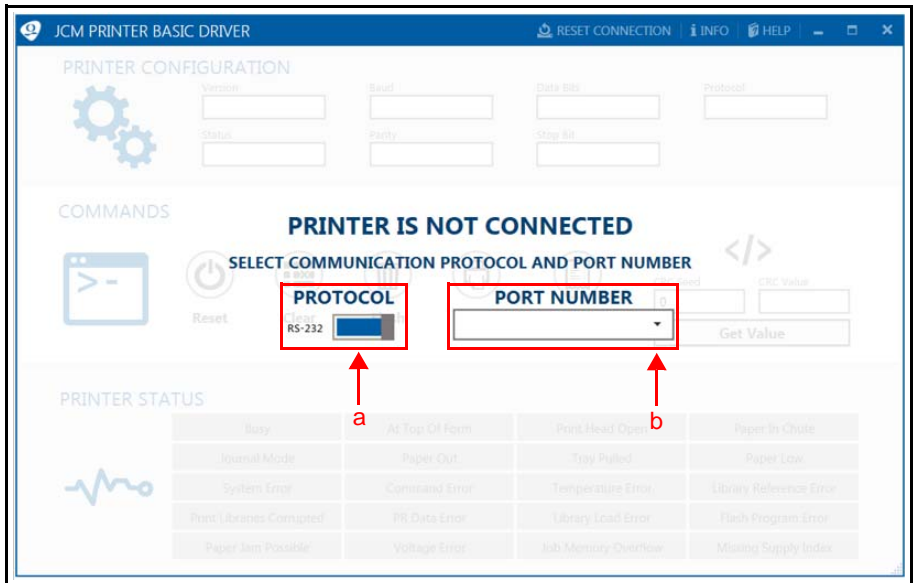


Figure 10 JCM Printer Basic Driver Opening Screen

7. Print Ticket Information (Figure 11 a).
 - Verify Configuration information.
 - Verify the Print quality of the Ticket Information.
 - Confirm that Tickets feed through the Printer properly.
8. Check for an Active condition in the Printer Status section (Figure 11 b). An Active condition for a Sensor or Printer Error (e.g., Paper Low or Paper Out) will be displayed as a **RED** highlighted box (not shown). When the Active condition is cleared, the **RED** highlight disappears from the Printer Status display.

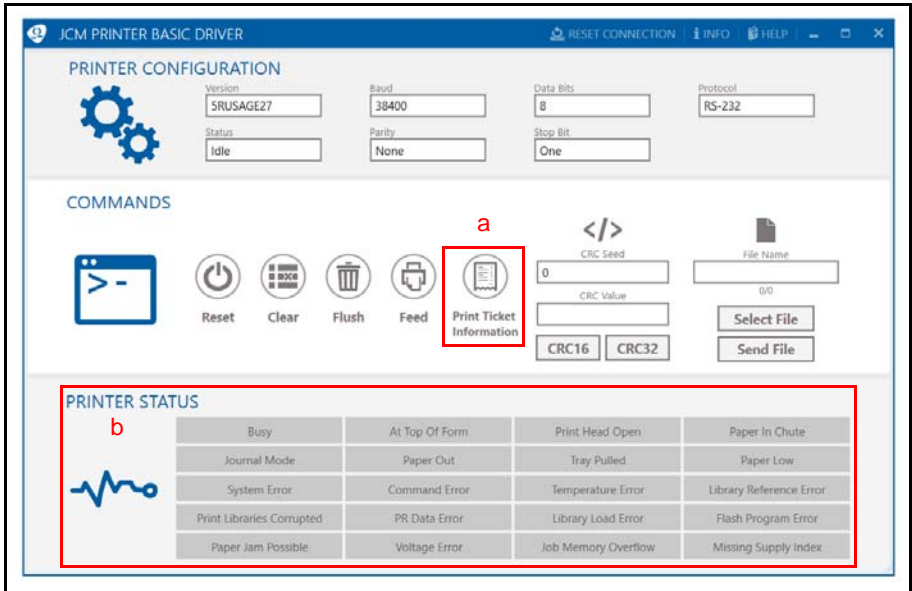


Figure 11 JCM Printer Basic Driver Printer Status Section

Lecture Notes

ABOUT GEN5 FIRMWARE

GEN5 FIRMWARE IDENTIFICATION

GEN5 Printer Firmware for most manufacturers is identified as shown in Table 3 below.

Table 3 GEN5 Firmware Identification (Most Manufacturers)*

Identifier	Example
Printer Type - First character e.g., '5'	'5' = GEN5
Protocol - One character 'R' = RS-232 'N' = Netplex 'S', 'H', 'C' or 'P' = USB Type†	'5R' = RS-232
Country Code (3 digits)	'5RUSA' = USA
Manufacturer (2 digits)	'5RUSABA' = Bally units
Version number - Remaining characters (variable length)	'5RUSABA22.dfu' = GEN5, RS-232, USA, Bally units, Version 22

* Various Game Manufacturers may have requested different Firmware naming formats.
Be sure to verify which Firmware version is approved for use within a Property's jurisdiction.

† Refer to Table 5 for USB Firmware Type descriptions.

GEN5 FIRMWARE IDENTIFICATION (IGT)

GEN5 Printer Firmware for IGT is identified as shown in Table 4 below.

Table 4 GEN5 Firmware Identification (IGT)

Identifier	Example
Printer Type - First two characters e.g., 'G5'	'G5' = GEN5
Protocol - One character 'N' = Netplex 'S', 'H', 'C', or 'P' = USB Type* 'I' = Combo Netplex, SPC Firmware†	'G5I' = Netplex/SPC
Country Code (3 numerals)	'G5I001' = GLI, USA/Canada
Firmware Version - Remaining characters (variable length)	'G5I0012200.dfu' = GEN5 for IGT, I = Combo Netplex/SPC, 001 = Jurisdiction (GLI USA/Canada), Version 2200

* Refer to Table 5 for USB Firmware Type Descriptions

† DIP Switch 1 is used to select either Netplex or SPC Mode. Refer to the Software Information Sheet for correct DIP Switch Settings.

USB FIRMWARE TYPES

Table 5 USB Firmware Types

Identifier	Description
'S'	USB SPC (Specific Printer Command)
'H'	USB HID (GDS) - Human Interface Device (Gaming Device Standard)
'C'	USB CDC - Communications Device Class (Windows)
'P'	USB PDC (Printer Device Commands (Coupon Xpress™))

USING THE JCM DFU DOWNLOADER

To update the GEN5 Printer Firmware, proceed as follows:

1. Connect a USB Cable between the USB Update Port on the right side of the GEN5 Printer (refer to Figure 2 k on page 4) and the PC.
2. Apply power to the GEN5 Printer.
3. From the PC Desktop, double-click on the JCM DFU Downloader Application icon.

The Printer status will display as 1 device connected (Figure 12 a).

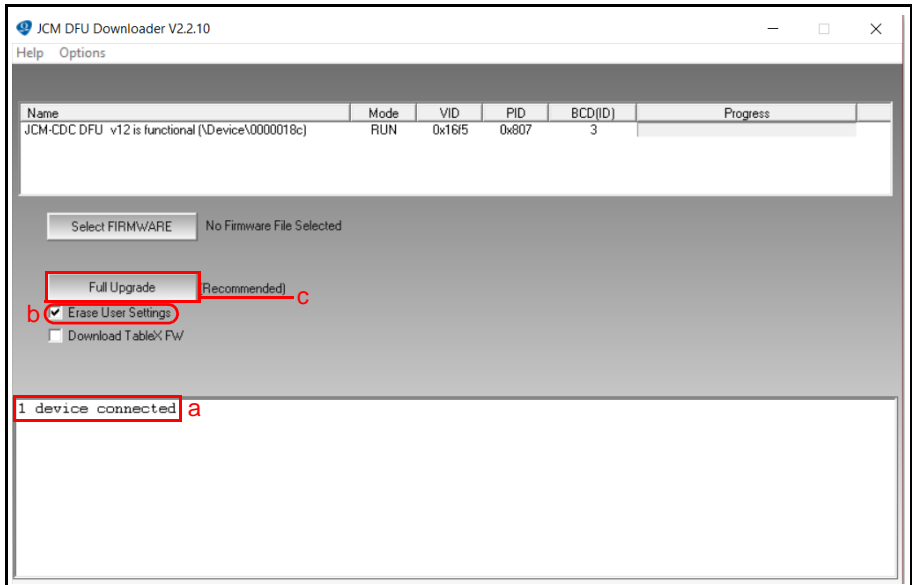


Figure 12 JCM DFU Downloader Application UI

4. If no Printer is detected, Drivers will need to be installed. (Drivers are installed automatically when the Printer is connected to a PC.)



NOTE: If Printer Drivers need to be installed manually, contact JCM Technical Support at (800) 683-7248.

5. Click on Select FIRMWARE.
The PC's web browser opens automatically.
6. Select the proper Firmware version.
The JCM DFU Downloader screen will indicate the following information:
 - File Name
 - File Type (DFU, SHA)
 - Printer Model Format
7. Ensure the Erase User Settings check box is selected (Figure 12 b).

8. Click on Full Upgrade (refer to Figure 12 c on page 14).
9. When the Printer status indicates *****Printer Successfully Updated.***** (Figure 13 a), the Firmware Update is complete.

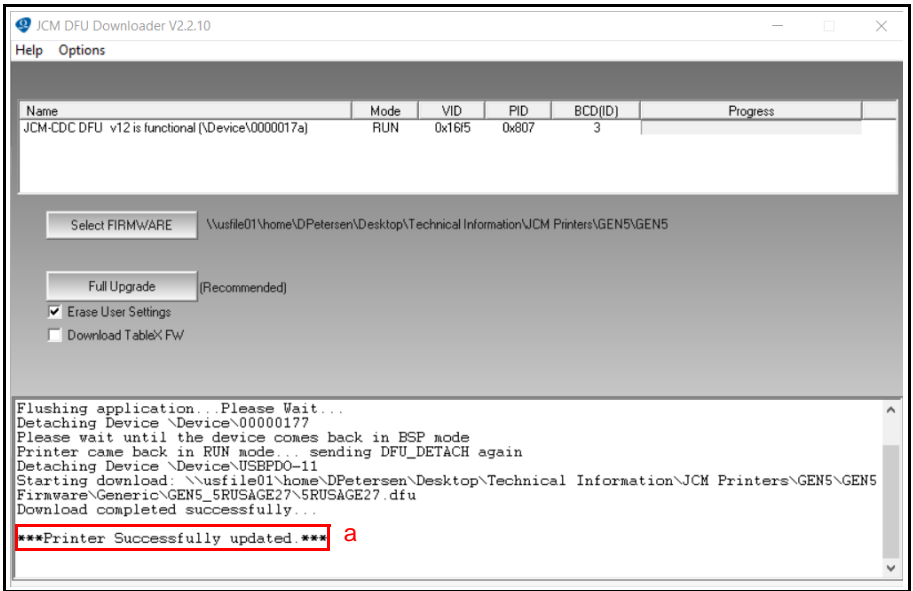


Figure 13 JCM DFU Downloader Firmware Update Complete

Lecture Notes

BLUEWAVE™DX DOWNLOAD

The JCM BlueWave™DX Tool (P/N 214780) offers an alternate method for updating the Firmware on the GEN5 Printer. To do so, proceed as follows:

SETUP FOR THE BLUEWAVEDX TOOL

1. Within the BlueWaveDX Tool's SD Card root directory, create a new folder labeled "GEN5 System".
2. Place the Firmware files for the GEN5 Printer within the new "GEN5 System" folder.



NOTE: Sub-folders are not recognized.

UPDATING FIRMWARE USING THE BLUEWAVEDX TOOL

1. Connect a standard USB Male "A" to Male "B" cable from the BlueWaveDX Tool's USB Connector Type A (Figure 15 a) to the GEN5 Printer's USB Update Port (refer to Figure 2 k on page 4).
2. Turn the BlueWaveDX Tool's Power Switch ON (Figure 15 b).
3. When the Firmware Update screen appears, press the OK Button (Figure 15 c).
4. Press the UP and DOWN arrow keys (Figure 15 d) to scroll through the list of available GEN5 Firmware versions.
5. Press the OK Button (Figure 15 c) to select the desired Firmware version.
6. Press the OK Button again to start the download.
7. When the Download Complete message is displayed, press the CLR Button (Figure 15 e) to return to the Main Menu

OR

Press the OK Button (Figure 15 c) to download Firmware to another Printer.



NOTE: The BlueWaveDX Tool Operator Guide (P/N 960-100942R) is available in the Support section of the JCM Global website at www.jcmglobal.com.

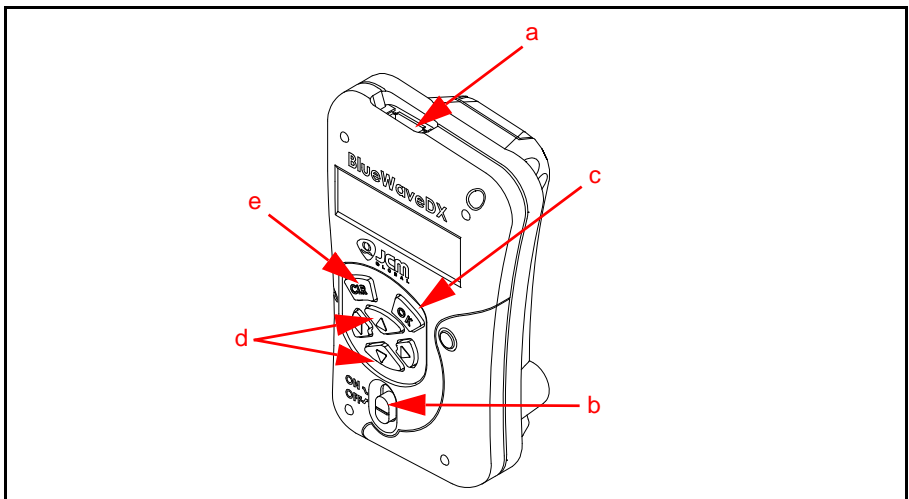


Figure 15 BlueWaveDX Tool (P/N 214780) Primary Controls

BEZEL LED INDICATIONS

The Bezel LED will display the following Bezel LED Indications.

Table 6 Bezel LED Indications

Bezel Display	Status
Solid ON	Printer is ready and in idle
Slow Blink	Paper Low or Printer Error
Fast Blink	Ticket Printing/Ticket in Chute
OFF	Printer Power is OFF

STATUS LED INDICATIONS

The Status LEDs will indicate the operational state of the GEN5 Printer.

Table 7 Status LED Indications

Condition or Error Detected	Ready (GREEN)	Paper (YELLOW)	Open (ORANGE)	Fault (RED)
No Power	OFF	OFF	OFF	OFF
Ready	ON	OFF	OFF	OFF
No Ticket Detected	OFF	ON	OFF	OFF
Paper Jam Detected	ON	OFF	OFF	ON
Printer Lid Open	OFF	OFF	ON	OFF
Firmware Problem Detected	ON	ON	ON	ON
Hardware Fault Detected	OFF	OFF	OFF	ON

ERROR CONDITIONS

Table 8 Error Conditions

Error	Error Description	Resolution
Paper Out	Results when the Printer does not detect Paper present.	Load a new Paper Stack.
Temperature	Results when the Printer is operating outside of its allowable temperature range. If the Printer is operating in an environment where the ambient temperature is roughly room temperature, this error would most likely be due to a hardware problem.	The Printer will automatically resume operation after the detected head temperature falls within range.
Voltage	Results if the Printer detects a Power Supply Voltage (+21VDC to +25VDC) outside its allowable range. This error could be due to a poor cable connection.	The Printer will automatically resume operation after the Power Supply is detected to be within range.
Print Head	Results when the Printer senses an internal error due to connectivity or an interfacing problem with the Thermal Print Head. This error could be due to a cable problem between the Main Controller Board and the Printer engine.	The Printer will remain in this error state until the power is cycled or the Unit is reset. If the problem persists, the Printer will require service.
Missing Black Index Mark	Results if the black Index Mark is not detected within approximately 10" of paper feeding or printing. This error indicates the presence of the wrong kind of paper in the Printer, or that the paper was inserted in the wrong direction (so that the black Index Mark is rotated 180 degrees).	Reload paper in proper orientation.
Paper Jam	Results when the Printer detects an error in the Paper Path.	Open the Printer Head and inspect the Paper Path for a Jammed Ticket.

Lecture Notes

MAINTENANCE EQUIPMENT

Table 9 Maintenance Equipment

JAC No.	Description
350-00292-100	Cleaning Kit
150-00013-100	Evaluation Harness
350-00258-100	24VDC Power Supply
302-100010R	USB Cable Male A to Male B
302-100004R	USB to Serial Adapter
JU-H30812-S1	4 Port Hub
214780	BlueWave™DX (DT-300) Unit

Lecture Notes

PERSONAL NOTES AND COMMENTS

Add relevant notes and comments regarding your installation here.

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