

PERSONAL NOTES AND COMMENTS

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Operator Guide



BlueWave™DX Tool
Operational Instructions

This document contains information for configuring and operating the JCM® BlueWave™DX Tool. The BlueWave™DX is used for multiple functions (e.g., downloading firmware, setting operational parameters, reading device status) and works with most JCM Banknote Acceptors, Validators and Printers. The BlueWave™DX features an LCD Display and multi-selection keypad, supports standard SD or SDHC Cards, and communicates with supported devices via a USB 2.0 full-speed connection. Supported devices are listed below.

Table 1 Supported Devices

JCM Acceptors (Gaming)	JCM Validators (Commercial)	JCM Printers/Other Product
UBA® -1x / UBA® -2x	VEGA™ / VEGA-RC™	GEN2U™
UBA™ Pro	TBV™-10x	GEN5®
iVIZION®	EBA®-4x	Peripheral Network Adapter (PNA®)
iPRO™-10x / iPRO-RC™	DBV®-40x	
RBA®-40C	DBV®-50x	

BLUEWAVE™DX TOOL

Figure 1 illustrates the JCM BlueWave™DX Tool.



Figure 1 Typical BlueWave™DX Tool

SPECIFICATIONS

The BlueWave™DX Tool Specifications are listed in Table 2 below.

Table 2 Technical Specifications

Compatibility	Most JCM Acceptors, Validators and Printers*
Processing Speed	USB (2.0 Full Speed) Download time depends on the memory size of the device. Speeds range from 34 seconds (Vega) to 124 seconds (TBV).
Switches	Power Switch, OK Button, CLR Button, Direction Buttons (UP, DOWN, LEFT, RIGHT).
Interface	USB Host Single Channel (USB 2.0 Full Speed); SD or SDHC Memory Card
Display	Monochrome LCD (122x32 dots with back light); LED Power Indicator
Supply Voltage	Four (4) AAA/LR03 Size Alkaline Batteries; Optional +5V Power Supply

* Refer to Table 1 on page 1 for a table of supported Devices.

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COMPONENTS

Figure 2 illustrates the BlueWave™DX Tool's Primary Component Features.

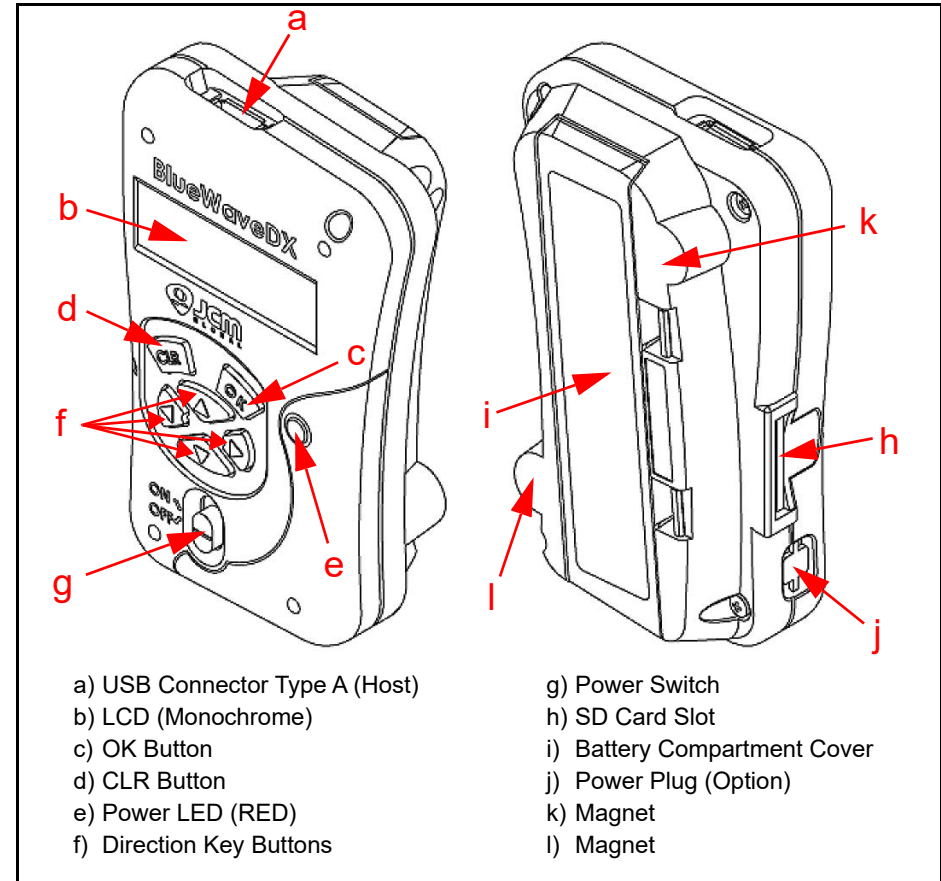


Figure 2 BlueWave™DX Tool Primary Components

BLUEWAVE™DX TOOL FUNCTIONS (SUMMARY)

Table 3 summarizes the functions supported by the BlueWave™DX Tool. Detailed descriptions of these functions begin on page 6 of this Operator Guide.

Table 3 BlueWave™DX Tool Functions*

Function	Description
FIRMWARE UPDATE	Firmware selection and update
STATISTICS	Displays historical activity
ENABLED DENOMI	Enabled Banknote by Denomination and Series
ERROR MESSAGE	Current display of the Unit Error
VERSION CHECK	Displays Current Firmware in the Unit
MAINTENANCE	Indication whether maintenance is required or not.
ACCEPTANCE LOG	Displays the current acceptance rate of the Unit, by Banknote Denomination
PRINTER CONFIG	Printers, selects the bar code ratio; 4 to 8, 3 to 9 or 4 to 12 (GEN5 Only)
DEVICE TEST	Provides JCM Tool Suite Performance Testing (iVIZION Only)
ICB FUNCTION	Set up of the ICB System (Enable/Disable, set Asset Number)
BWDX BATTERY	Provides status of the Battery condition
LANGUAGE	Select the displayed language

* Note: Some functions are not supported for certain Units.

BLUEWAVE™DX TOOL AND ACCESSORIES PARTS LIST

Table 7 lists the BlueWave™DX Tool, Cables and Accessories available.

Table 7 BlueWave™DX Tool, Cables and Accessories

JAC No.	Description
550-100720R	BlueWave™DX (DT-300) Unit
302-100010R	USB Male A to Male B Connectors (3 foot length)
302-100011R	USB Male A to Mini-B Connectors (3 foot length)
451-000136R	SDHC 32GB SD Card

LANGUAGE

To select a Language option, proceed as follows:

1. Press the UP and DOWN Arrow keys to select LANGUAGE from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to select the desired Language option:
 - ENGLISH
 - DEUTSCH
 - ESPANOL
4. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

SLEEP MODE

The BlueWave™DX Tool will enter Sleep Mode (a powered-down state) after 10 minutes if no operation is performed.

To awaken the BlueWave™DX Tool from Sleep Mode and resume normal operation, press any key or button on the Unit.

STANDARD SD CARD SET-UP

To prepare an SD Memory Card for use, proceed as follows:

1. Insert a Standard SD Memory Card (SDHC acceptable) into a Memory Card Adapter Slot connected to a PC.



Caution: JCM strongly recommends using a Brand name SD Card (e.g., Sandisk®, Patriot®, Kingston®). Some “Generic” Brands do not conform to Standard Protocol formatting specifications.

2. Create a Sub-directory (folder) for each JCM Banknote Validator, Acceptor, Printer or device in the root directory of the SD Card.



NOTE: Specify each directory name as **DeviceName System** (e.g., for an iVIZION folder, the directory name should read: **iVIZION System**). Be sure to include a character space between **DeviceName** and **System**. Refer to Table 4 for examples.

Table 4 Device Names

iVIZION System	VEGA System	EBA40 System
UBA System	UBA500 System	TBV-100 System
GEN2U System	iPRO System	DBV400 System
GEN5 System	RBA40C System	DBV500 System
PNA System		

3. For each Acceptor or Banknote Validator, change the suffix in the Firmware name to **.bin**.

For example, change the suffix in UBA Firmware version u10_23044_id003.usa to u10_23044_id003.bin.



NOTE: For GEN Printers and Peripheral Network Adapters (PNAs), no change is needed for the Firmware name. The suffixes **.dfu** or **.sha** should be left as is.

4. Save the Firmware file to the SD Card in the appropriate **DeviceName** folder. Firmware stored in the sub-directory of a Device System Folder will not be accessed by the BlueWave™DX.




NOTE: The first twenty (20) Firmware versions in each Device folder will be displayed. If more than 20 files are stored in a folder, only the first 20 files will be accessible.



Caution: Do not delete or modify the BWDXCARD.INF or BWDXINFO.INF files. These are Operating System files that must remain in the root directory.

GENERAL OPERATING INSTRUCTIONS

1. Connect a USB Cable between the Acceptor, Validator, Printer or other device and the BlueWave™DX Tool's USB Type A Connector (refer to **Figure 2 a** on page 3).
-  **NOTE:** Ensure the correct USB Cable (either B, mini A or C Type) is used for the device.
2. Apply AC Power to the Acceptor, Validator, Printer or other device.
 3. Slide the BlueWave™DX Tool's Power Switch to the ON position (refer to **Figure 2 g** on page 3).
 4. Press the UP and DOWN Arrow Keys to select the desired function (refer to **Figure 2 f** on page 3).
 5. Press the LEFT and RIGHT Arrow Keys to scroll through and select the desired data (refer to **Figure 2 f** on page 3).
 6. Press the CLR button to navigate back to the previous screen (refer to **Figure 2 d** on page 3).

ABOUT BLUEWAVE™DX FUNCTIONS

BOOTLOADER


The Bootloader function is used to update the operating Firmware in the BlueWave™DX Tool. Two different Update Modes are available:

- BlueWave™DX Firmware Update Mode - Updates the Firmware in the BlueWave™DX Tool.
- BlueWave™DX EEPROM Update Mode - Updates the EEPROM Configuration Data in the BlueWave™DX Tool.

Firmware Update Mode

To enter Firmware Update Mode:

1. Ensure that the Firmware update has been copied to the root directory of the SD Memory Card.

 **NOTE:** The filename will be similar to **BWDXFW0xxx.hex** where **xxx** refers to the Firmware Version.

2. To enter the Firmware Update Mode, press and hold the UP and DOWN Arrow keys (refer to **Figure 2 f** on page 3) while sliding the Power Switch to the ON position (refer to **Figure 2 g** on page 3).
The display will identify the current Firmware version and the updated Firmware version.
3. Press the OK button to update Firmware (refer to **Figure 2 c** on page 3).

EEPROM Update Mode

To enter EEPROM Update Mode:

1. Ensure the BWDXINFO.inf file is in the root directory of the SD Card.
2. Press and hold the LEFT and RIGHT Arrow keys (refer to **Figure 2 f** on page 3) while sliding the Power Switch to the ON position (refer to **Figure 2 g** on page 3).
3. Press the OK button to update the EEPROM (refer to **Figure 2 c** on page 3).

ICB FUNCTION (iVIZION/iPRO UNITS)

To set the status of the ICB (Intelligent Cash Box) System, proceed as follows:


1. Press the UP and DOWN Arrow keys to highlight ICB Function in the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button to select the ICB Function (refer to **Figure 2 c** on page 3).
The current status of the ICB Function (Enabled/Disabled) is displayed.
3. To change the current status:
 - a). Press the OK button.
 - b). Press the LEFT and RIGHT Arrow keys to select the desired status (refer to **Figure 2 f** on page 3).
 - c). Press the OK button to select the desired status.
4. Press the DOWN Arrow key to display the M/C Number (Asset).
 - a). Press the OK button to edit the M/C Number.
The M/C Number's last digit (on the far right) will flash.
 - b). Press the UP and DOWN Arrow keys to increase or decrease the last digit.
 - c). Press the LEFT Arrow key to select the second from the right digit of the M/C Number.
 - d). Press the UP and DOWN Arrow keys to increase or decrease this digit.
 - e). Repeat Steps c and d to edit remaining digits in the full M/C Number.
 - f). Press the OK button to save the edited M/C Number.
5. If the Cash Box is inhibited, the message Insert ICB into docking station to clear the inhibit will be displayed.
Insert the Cash Box onto a Docking Station to enable the ICB function.

If the Cash Box is enabled, the message System enabled OK to Inhibit will be displayed.

Press the OK button to inhibit the ICB in the Cash Box, or press the CLR button to exit to the Main Menu (refer to **Figure 2 c/d** on page 3).

BWDX BATTERY

To view the Battery Level (Battery Voltage), proceed as follows:

1. Press the UP and DOWN Arrow keys to select BWDX BATTERY from the Menu (refer to **Figure 2 f** on page 3).
 2. Press the OK button (refer to **Figure 2 c** on page 3).
The Level indicator displays Battery Voltage.
-  **NOTE:** The Battery Level is also indicated by the Battery Symbol located in the top right corner of the LCD (Monochrome) Display (refer to **Figure 1** on page 1).
3. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

Sensor Designations (iVIZION Unit Device Test)

Figure 3 illustrates a sample BlueWave™DX Tool Sensor Test LCD Display for an iVIZION Unit Device Test. Each Sensor is identified using Line 1 and Line 2. As an example, the display shown in Figure 3 provides the following information:

- EX indicates the Exit Sensor (**Figure 3 a**);
- An Active Sensor condition is indicated by an * symbol displayed in the third line of the Sensor Test Display (**Figure 3 b**);
- EN* indicates the Entrance Sensor is active (**Figure 3 c**); and
- NB* indicates the Normal Box is installed (**Figure 3 d**).

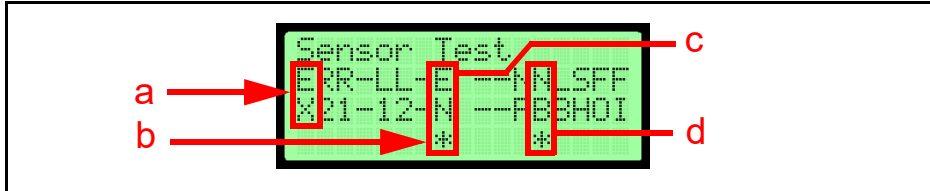


Figure 3 BlueWave™DX Tool Sensor Test Display (iVIZION Unit Device Test)

Sensor Designations are shown in Table 6 below.

Table 6 Sensor Designations

Display	Description
EX	Exit Sensor
R2	CIS R2
R1	CIS R1
L1	CIS L1
L2	CIS L2
EN	Entrance Sensor
NF	Nearly Full
NB	Normal Cashbox
LB	Large Cashbox
SH	Stacker Home
FO	Feed Out
FI	Feed In

BLUEWAVEDX FUNCTIONS



NOTE: Functions supported may vary, depending on unit. Refer to the DT-300™ Operator Integration Guide (P/N 960-000167R, available at exchange.jcmglobal.com) for a full list of functions available for each device.

Firmware Update (Operational Mode/Forced Download Mode)

On most JCM Devices, the Firmware can be updated with the Device in Operational Mode (No DIP Switches set to ON). If a Device does not download Firmware in Operational Mode, then Forced Download Mode must be used to download Firmware to the Device. Table 5 identifies the Forced Download Mode DIP Switch Settings for the following JCM Devices.

Table 5 Forced Download Mode DIP Switch Settings

Device	Forced Download Mode DIP Switches ON
UBA®-1x, UBA®-2x	6, 7, 8
UBA™ Pro	6, 7, 8
iVIZION®	6, 7, 8
iPRO®	6, 7, 8
TBV™	1, 6, 7, 8
VEGA™	1, 7, 8
EBA®-40	6, 7, 8
RBA-40C	6, 7, 8
DBV®-400	6, 7, 8
DBV®-500	6, 7, 8

To update Firmware to the JCM Device, proceed as follows:

1. Connect a USB Cable between the BlueWave™DX Tool and the JCM Device.
 2. Turn Power to the BlueWave™DX Tool and the JCM Device ON.
The Firmware Update screen will be displayed (default).
 3. Press the OK button to select the Firmware Update function.
-
- NOTE:** The BlueWaveDX™ Tool will identify the attached device and display the appropriate Firmware versions.
4. Press the UP and Down Arrow keys to select the Firmware version for update (refer to **Figure 2 f** on page 3).
 5. Press the OK button to start the download (refer to **Figure 2 c** on page 3).
The DOWNLOAD COMPLETE display appears when downloading is complete.
 6. Press the CLR button to navigate back to the previous menu (refer to **Figure 2 d** on page 3).

STATISTICS

To view the Unit Statistics, proceed as follows:

1. Press the UP and DOWN Arrow keys to select STATISTICS from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data and display:
 - Device Model
 - Firmware Version
 - Acceptance Rate (Banknotes Total)
 - Acceptance Rate (Tickets Total)
 - Acceptance Rate by Banknote Denomination and Banknote Series
4. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

ENABLED DENOMI

To view Enabled Denomination data, proceed as follows:

1. Press the UP and DOWN Arrow keys to select ENABLED DENOMI from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data:
 - Country
 - Banknote Denomination
 - Banknote Series
4. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

ERROR MESSAGE

To view the Device Status, proceed as follows:

1. Press the UP and DOWN Arrow keys to select ERROR MESSAGE from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
The Device Status will be displayed.
3. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

VERSION CHECK

To view Firmware Version information, proceed as follows:

1. Press the UP and DOWN Arrow keys to select VERSION CHECK from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
The Firmware Version information will be displayed:
 - M: Country Code, Device Model, Protocol
 - V: Firmware Version Number
 - S: Device Serial Number
3. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

MAINTENANCE

To view the Maintenance Data, proceed as follows:

1. Press the UP and DOWN Arrow keys to select MAINTENANCE from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data display.
The Device Response will indicate Required or Not Required.
4. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

ACCEPTANCE LOG

To view the Acceptance Log data, proceed as follows:

1. Press the UP and DOWN Arrow keys to select Acceptance Log from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to scroll through the data:
 - BV Model (Banknote Validator)
 - Firmware Version
 - Inserted Count (Total Banknotes + Tickets)
 - Acceptance Rate (Ticket Total)
 - Acceptance Rate (Banknotes by each Denomination and Banknote Series)
4. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

PRINTER CONFIG (GEN5 PRINTER ONLY)

To view the Printer Configuration Data, proceed as follows:

1. Press the UP and DOWN Arrow keys to select PRINTER CONFIG from the Menu (refer to **Figure 2 f** on page 3).
2. Press the OK button (refer to **Figure 2 c** on page 3).
3. Press the UP and DOWN Arrow keys to select the Barcode format.
 - 4 to 8 (default)
 - 3 to 9
 - 4 to 12
4. Press the OK button to change the ratio (refer to **Figure 2 c** on page 3).
5. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).

DEVICE TEST (iVIZION UNIT ONLY)

To conduct a Device Test for the iVIZION Unit, proceed as follows:

1. Place the iVIZION Unit in Test Mode (DIP Switch #8 ON).
2. Press the UP and DOWN Arrow keys to select DEVICE TEST from the Menu (refer to **Figure 2 f** on page 3).
3. Press the OK button (refer to **Figure 2 c** on page 3).
4. Press the UP and DOWN Arrow keys to select the desired Test.
5. Press the OK button to start the Test.
6. Press the CLR button to stop the Test.



NOTE: For information on Sensor Designations, refer to Sensor Designations (iVIZION Unit Device Test) on page 10. For details on available function tests, refer to the iVIZION Operation and Maintenance Manual (JCM P/N 960-100929R).

7. Press the CLR button to return to the Main Menu (refer to **Figure 2 d** on page 3).