

Product Overview

The Pyramid Technologies, Inc. (PTI) Pyramid bill acceptors are designed for indoor use in the amusement, vending, lottery and kiosk markets.

Pyramid Acceptor Features

- Lighted arrows on bezel and lighted bill entry area.
- High security against fraudulent bills.
- Flash downloadable software using a Palm™.
- On-board pushbutton/LED and advanced diagnostics via Palm™.
- Many interfaces available: Pin-outs compatible with other manufacturers' bill acceptors.
- Dual-stage optical anti-stringing.
- Simple configuration and setup.
- 12 VDC (+/- 10%) operation is standard. Optional 120 VAC or 24VDC MDB operation available.
- Removable bill path for easy cleaning.
- Can handle bills up to 72 mm wide for foreign applications.
- 200, 500 and 1000 bill cassettes available (Stackered model).
- Auto-calibration - Never needs to be calibrated.
- Auto-Detection available for multiple interfaces.

Product Specifications

Operating Voltage: 12 VDC(+/- 10%) standard, optional 120 VAC or 24VAC available.

Operating Currents: Idle: 180 mA **Accepting:** 500 mA **Stalled:** 1.50 A.

Operating Temperature: 0C – 60C, 90 % non-condensing humidity.

Acceptance Rate: Greater than 95%, including second time insertion of a rejected bill.

Acceptance Speed: Approx. 20 bills per minute.

Sensor Array: 8 Optical Sensors

Net Weight: Stackered Model..... 2.3 lbs./1.04 kg.

Stackerless Model..... 1.0 lbs./0.45 kg.

Warranty: 2 year, parts and labor (see Warranty Section).

Note: "VFM, VFM3S, VFM5S, GL5, LE3000 and Mars" are Trademarks of Mars Electronics, International. "HSV-300" is a Trademark of Gamemax. Palm is a Trademark of Palm, Inc

MODEL NUMBER/SERIAL NUMBER INFORMATION SECTION 1

To order any XLC Series acceptor, use the following order information:

Series	Model	Type	Cashbox	P.S./Comm.	Country
XLC	- 5200-	X	X	X	- USA
APEX	- 5400-	X	X	X	- XXX
Model					
5200	5400				

Type

- S- Stackerless
- U- Upstacker
- D- Downstacker

Cashbox

- N- None (Stackerless only)
- 2- 200 Bill Cassette
- 5- 500 Bill Cassette
- 1- 1000 Bill Cassette

P.S./Comm. (Power Supply/Communication Options)

- 1- 12 VDC (No harness supplied)
- 2- Standard 120 VAC supply (Ships with 9-pin AC harness)
- 3- High Level 120 VAC supply (Ships with 9-pin AC harness.)
- 4- MDB Option (Ships with MDB harness)
- 5- True RS-232 Option, 12VDC operation (Ships with DB-9/hard drive or USB connector harness)
- 9- 24VAC Version

Country Code

Follows ISO three (3) digit Country Code
Software currently available:
Visit our website at www.pyramidacceptors.com for details.

Serial Number Description

Example Serial Number: S/N 0238 00001

In this example, the first two digits are the year of manufacture (2002).
The week of manufacture is week **38** of 2002.
The sequential production serial number is **00001**.

**Dimensional Drawings- Stackered and Stackerless
Cassette Styles**

The stackered Pyramid bill acceptor can be ordered with either a 200, 500 or a 1000 bill cassette. The cassette has a cover that can easily be opened to retrieve the bills without removal of the cassette from the acceptor. For dimensional drawings, please visit our website at www.pyramidacceptors.com in the Bill Acceptors Section.

Limited Warranty

Our bill acceptors are warranted for a period of one (2) year from date of original invoice. This warranty extends to the original purchaser of the warranted product and each transferee owner of the product, during the term of the warranty. During the warranty period, manufacturer will repair or replace (at manufacture's option) any parts, up to and including the complete acceptor, which fail to function properly because of defects in material or workmanship.

This warranty covers bill acceptors only, which are designed to accept genuine currency.

Manufacturer is not responsible for any consequential damage or performance degradation that results from counterfeit currency or foreign objects inserted into the bill acceptor. The product to be repaired under warranty must be delivered, inbound freight prepaid to an authorized service center. Upon request, the owner must show proof of purchase when submitting equipment for service during the warranty period. Repair or installation at the owner's location is not included in warranty. During the warranty period, manufacturer will pay all outbound ground freight charges to the owner's location. The owner must assume special handling or shipping charges. Manufacturer will not be liable for any consequential damages as a result of defects in material or workmanship. Any written or applied warranty of this product is strictly limited to the refund of the cost of goods purchased. Damage due to negligence, accidents, electrical overload, misuse, abuse, vandalism, or an act of God, is not covered by this warranty. Any alteration of the product after manufacture voids the warranty in its entirety.

Shipping Damage

When a product is returned to the owner after service, only consignee (the person or company receiving the bill acceptor) can file a claim against the carrier for concealed damages. Therefore, unpack immediately. Notify the delivery carrier of damages and request immediate inspection. Send a letter of intent to file claim to the carrier within 72 hours from the time of receipt. Send a copy of this letter to the shipper.

Service

For service information, please contact Pyramid Technologies, Inc. for a Service Center near you. For any items returned under warranty or for repair, complete written information including the serial and model number as well as a description of the malfunction or defects must be submitted to the Service Center when requesting a Return Material Authorization number (RMA number). Owner accepts full responsibility for any return without prior authorization. The RMA number must be displayed on the exterior of the returned product carton(s).

Unpacking the Bill Acceptor

Immediately inspect the bill acceptor for damage when unpacking it. If the acceptor is damaged, place it back in its original carton along with the packing materials.

Notify the carrier of damages and request an immediate inspection of the package. Send a letter of intent to file a claim to the carrier within 72 hours from time of delivery. Please also send a copy of this letter to the shipper. Only the person or company receiving the bill acceptor can file a claim against the carrier for concealed damages.

Installation/Mounting

The Pyramid bill acceptor has been designed to easily mount onto existing studs in OEM equipment. If you are mounting the acceptor to a wood panel or door, you may require our optional Adapter Bracket (**P/N 95AB0001**).

To install the acceptor:

- Disconnect all power to the machine.
- Connect the interface cable from the machine to the acceptor.
- On 120 VAC or 24 VAC units, connect the 9-pin power plug to the machine. Install the green ring terminal ground wire to a stud that is part of the grounded frame.
- Secure the harnesses in place using the provided tie wraps.

Auto-Detect Mode

To enter the auto-detect mode, the customer should install the bill acceptor into the machine. The machine should be fully loaded with product and ready to operate. The sequence for auto-detect will be:

1. Ensure machine is fully functional and has power applied to it and to the Pyramid acceptor.
 2. Push and hold the Diagnostic Pushbutton on the Pyramid acceptor for a minimum of ten (10) seconds. The LED's will flash 10 times and the user should let go of the pushbutton. **(The user can then insert a configuration card as normal, or wait 25 seconds for the to Auto-Detect the interface type.)**
 3. The bill acceptor will wait the 25 seconds for the door to close and will then attempt to Auto-Detect if a Configuration Card is not entered into the acceptor.
 4. The bill acceptor will store the configuration that it thinks is appropriate and then recycle itself to tell the user that the Auto-Detect sequence has been completed.
 5. The user should then test the machine for proper operation.
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The XLC bill acceptor has no DIPswitches. It can be factory programmed to exactly fit your needs, or you can configure it using one of two methods. The first method is using the Configuration Card. This simple card allows you to program all features of the bill acceptor. The second method is using a Palm or in conjunction with our Flash Interface Cable (P/N 05AA0011). Using this method, you can quickly configure the bill acceptor. Please note that power must be applied to the bill acceptor to use either configuration method.

Configuration using a Palm

This method allows you to change the configuration of the acceptor easily. Please order Document " Palm Tools" for more details. See the section on Flash Programming for more details.

Configuration using the Configuration Card

The acceptor can be configured using a Configuration Card. A Configuration Card is printed on the last page of this manual. To use this card, first make a copy using a standard black and white laser or bubble jet copier. Make sure the copy is printed on white copier paper and is the same size as the original card. Note: Copiers occasionally change the size of printed materials. This is why you should compare the copied card to the original card.

Once you have copied the card in the manual, carefully cut it out along the edge lines.

Once configured with the card, the acceptor will remember these settings, even if power is removed.

When you fill in the card, use a black felt tip marker and fill the selected block completely making sure no marks are outside the block. Note: As a service to our customers, Pyramid Technologies, Inc. will configure each acceptor to your requirements free of charge. Just ask!

Configuring the Bill Acceptor

- Make sure power is applied to the bill acceptor.
 - Press and hold the Diagnostic Pushbutton located at the left rear of the bill acceptor (looking at the acceptor from the rear). Hold the Diagnostic Pushbutton for at least ten (10) seconds, then release.
 - The bezel lighting on the front of the acceptor will flash ten (10) times.
 - Insert the Configuration Card into the acceptor, arrows first, printed side face up.
 - The acceptor will hold the Configuration Card for a second or two, then feed it back to you.
 - If the bezel lights are flashing rapidly, the acceptor has read the Configuration Card correctly. The configuration is now in permanent memory in the bill acceptor. The acceptor will reset itself. You can now begin using the acceptor.
 - If the bill acceptor has not read the Configuration Card correctly, the bezel lights will flash slowly a certain number of times. The number of flashes will tell you which Section of the card it cannot read correctly. If this occurs, make sure that Section is filled in neatly. The bill acceptor will stay in the Configuration Mode until it has correctly read a Configuration Card, or if you remove power to the acceptor.
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Downloading new software to the XLC bill acceptor is accomplished using a Palm™. If you wish to change the software inside the acceptor, you must have an approved version of these devices. Request document “_Palm Tools” for more details, or visit our web site.

Flash Programming Primer

Instead of using an EPROM to hold the bill acceptor software, Pyramid Technologies, Inc. chose to use a Flash Device installed on the bill acceptor's Microprocessor Board. Using this device, there is no need to open the acceptor to change software. To change the acceptor's software, you will plug a Palm into the six (6) pin connector located next to the Diagnostic Pushbutton (left rear of the acceptor as seen from the back). You also need to purchase the required Flash Interface Harness, P/N 05AA0011. After loading the required software onto the Palm, you can download new software to any bill acceptor at any location. The only requirement is that the acceptor has power applied. This method has the added benefit of allowing the Palm to be able to perform advanced diagnostics on the bill acceptor. This makes for an excellent troubleshooting device.

Our web site (www.pyramidacceptors.com) has the latest available software located in our “Download” Section, and documentation is available upon request, or from the “Support” section of our web site.

Palms are available from Pyramid Technologies, Inc. or you may purchase an approved device yourself.

Bill Acceptor Testing

- Apply power to the machine. The bill acceptor will cycle its motor and stacker, if so equipped.
- Check the bezel lighting. Based on the configuration you programmed, the bezel lights should be on solid or flashing at a one second rate. This will indicate that the acceptor is ready to take bills.
- Insert one of each denomination that can be accepted and verify that proper credit is given to the machine.
- If the acceptor does not accept a particular bill or does not credit the machine properly, re-check the configuration that you programmed using the Configuration Card.

The Pyramid bill acceptors have built in diagnostic abilities. These can be accessed using the Diagnostic Pushbutton, located at the left rear of the bill acceptor (viewed from the back).

Pushbutton Operation

The Diagnostic Pushbutton on the Pyramid bill acceptor is utilized for two functions. They are:

1. Diagnostics of the acceptor using the front bezel lighting.
2. Configuration of the acceptor using the Configuration Card.

Refer to Configuration/Configuration Card Section (pages 7-9) for details on configuring the acceptor.

Diagnostic Features

To enter the Diagnostic Mode, the acceptor must have power. The front bezel lighting is used to flash a certain number of times to indicate an error, if one exists.

To enter the Diagnostic Mode, push and hold the Diagnostic Pushbutton located at the left rear of the acceptor (viewed from the back). Hold it for at least one (1) second, but no more than five (5) seconds, then release.

Note: Holding it longer than 10 seconds will put the acceptor into a Configuration Mode and it will expect to have the Configuration Card inserted next. If you have accidentally entered this mode, cycle the acceptor power and start again.

Look at the front bezel of the bill acceptor. It will be flashing the bezel lights on and off. The number of times the lights flash corresponds to the error code listed on the next page.

To exit this mode, either let the acceptor sit (it will automatically exit this mode after thirty (30) seconds), or press the button again for 1-5 seconds. (Remember, don't hold for longer than five (5) seconds.)

Front Bezel Lighting Flash Codes

The flash codes shown correspond to the XLC bill acceptor error. The acceptor will flash the error code, then wait 3 seconds and flash it again.

Flashing Code	Meaning of Flashing Code	Corrective Action
LED's always OFF	The acceptor has no power.	Check that power has been applied.
LED's always ON	No error exists- acceptor is OK.	None.
1 Flash	Something is in the bill path.	Remove the cassette and Lower Transport to inspect for foreign objects. Clean if necessary.
2 Flashes	Something is obstructing the stacker.	Remove the cassette and Lower Transport to inspect for foreign objects. Clean if necessary.
3 Flashes	The cassette is full of currency.	Remove the cassette and empty it.
4 Flashes	The cassette has been removed.	Replace the cassette.
5 Flashes	The acceptor is defective.	Replace the acceptor.
6 Flashes	The acceptor is not enabled.	Verify that the host has enabled the acceptor.
10 Flashes	Configuration Mode has been entered.	Configuration Card must be inserted into the acceptor or cycle power to the acceptor to exit this mode. See Configuration Section for details.
Rapid Flashing During Operation	The acceptor has detected a stringing attempt, or the optical anti-stringing sensor is dirty.	Remove the Lower Transport and clean the optical anti-stringing sensor pair openings. These sensor openings are located on the Lower Transport, about ½ " behind the round, white plastic rollers, and to the far left and right of the bill path. It is a good idea to clean all of the sensors at this time, both the entire upper and lower halves of the bill path. Reinstall the Lower Transport and cycle the power.

Maintenance

The Pyramid bill acceptor is relatively maintenance free. An occasional cleaning is all that is needed to keep the acceptor in top operation. To clean the acceptor:

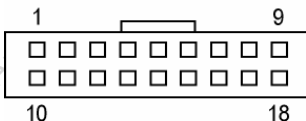
- Remove power from the machine.
- If equipped with a stacker, unlatch the cassette by pushing in the top latch and lifting the cassette up and out.
- Unplug the I/O connector and/or power connector from the right side of the acceptor. Note: You cannot remove the Lower Transport without first removing the I/O connector!
- Remove the Lower Transport by pushing in the latch located on the bottom of the acceptor at the rear. Gently pull the Lower Transport out of the assembly.
- Clean the bill path using a soft cloth or towel. Do not use any cleaners other than a 50/50 mixture of water and isopropyl alcohol.

NOTE: Pay particular attention to the gray oval pieces of plastic in the lower and upper transport area. They must be cleaned well for proper operation.

- Do not use any oils or silicon spray on the acceptor!

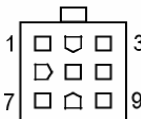
Connection Details

18-PIN



18-pin I/O connector
(looking at the acceptor)

9-PIN



9-pin 120 VAC or 24 VAC connector
(view of connector)

18-pin Mating Connector

Amp "Modu" 18-pin, P/N 102398-7 (IDC Housing)
Amp Back Cover P/N 102536-7
Amp Front Cover P/N 102681-4

9-pin Mating Connector
Amp Mate-N-Lock 9-pin P/N 172161-1
Amp Pin, Male P/N 170364-1

Pin	18-Pin Connector Function (wire color)
1	\$1 Low-level credit line output (Brown)
2	~INT line for Mars 600-baud mode (Orange)
3	Serial/~Pulse or ~\$5 for \$1/\$5 mode (Yellow)
4	DC Power Ground (Black)
5	TXD for Mars 600 or TTL RS232 (Green)
6	High Escrow Line for \$1/\$5 mode or ~\$1 Enable for GL5 mode (Blue)
7	\$5 High Enable for \$1/\$5 mode (Gray)
8	~\$5 Low Enable for GL5 mode (Pink)
9	\$1 High Enable for \$1/\$5 mode or ~\$10 Low Enable for GL5 mode (White)
10	Out of Service line (pulled low) (Tan)
11	+12 VDC Power (Red)
12	~Acceptor Enable (Pull low to enable) (Violet)
13	330 Ohm resistor to +5 VDC for LED (White/Orange)
14	~Send line for Mars 600 or Low ~Escrow line for \$1/\$5 mode (White/Blue)
15	~\$1 Low Enable for \$1/\$5 mode (White/Yellow)
16	RXD for TTL RS232 (White/Red)
17	~\$5 Low Enable for \$1/\$5 mode (White/Green)
18	~Escrow Low Enable for \$1/\$5 mode or ~\$20 Low Enable for GL5 mode (White/Gray)

Pin	9-Pin Connector Function
1	120 VAC Neutral Inhibit
2	120 VAC Neutral Enable
3	120 VAC Hot Enable
4	120 VAC Hot Power
5	24 VAC hot for 24 VAC model
6	120 VAC Neutral Power or 24 VAC Neutral Power for 24 VAC version.
7	Bill Acceptor Relay Contact
8	Bill Acceptor Relay Contact
9	No Connection

Configuration Card

The Configuration Card is to be copied from the last page of this manual, using either a laser or a bubble jet copier. **Use standard photocopy paper.** After copying it, **make sure that it matches the original size of 6.0 x 2.6 inches (152 x 66 mm).**

Note: Copiers occasionally change the size of printed materials. This is why you should compare the copied card to the original card.

To use your copy, fill in the desired selections with **black felt-tipped ink** and cut the Configuration Card out along the solid line.

If you are printing this manual from a PDF file (which may be downloaded from our web site), **you must turn off any “shrink” or “expand” settings from within the print menu** to be sure the card is printed at the proper scale.



INSERT THIS SIDE UP, THIS END FIRST
USE BLACK INK, FILL OVALS COMPLETELY



Need Assistance?
Call 480-641-9733
7:30 - 2:30 Pacific
Let Us Help!

section 2

Pulses per Dollar
(sum of selected values)

<input type="text" value="04"/>	<input type="text" value="4"/>
<input type="text" value="02"/>	<input type="text" value="2"/>
<input type="text" value="01"/>	<input type="text" value="1"/>
<input type="text" value="0"/>	<input type="text" value="None"/>

Example:
For 20 pulses, fill
in the ovals for
02, 04, and 2.
(02+04+2=08)

Pulse Speed:

<input type="text" value="Slow"/>	<input type="text" value="Fast"/>
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Lighted Button:

<input type="text" value="Solid On"/>	<input type="text" value="Flashing"/>
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section 3

section 4

Select Bills to Enable

<input type="text" value="Bill 1 (\$1)"/>	<input type="text" value="Bill 2 (\$5)"/>
<input type="text" value="Bill 3 (\$10)"/>	<input type="text" value="Bill 4 (\$20)"/>
<input type="text" value="Bill 5 (\$50)"/>	<input type="text" value="Bill 6 (\$100)"/>
<input type="text" value="Bill 7"/>	<input type="text" value="Bill 8"/>
<input type="text" value="Bill 9"/>	<input type="text" value="Bill 10"/>
<input type="text" value="Bill 11"/>	<input type="text" value="Bill 12"/>

Example:
To accept USA
\$1, \$5, and \$10
fill in the ovals
for Bill 1, Bill 2,
and Bill 3.

Security Level:

<input type="text" value="High"/>	<input type="text" value="Low"/>
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Insert Direction:

<input type="text" value="Face up, Left Tail"/>	<input type="text" value="All 4 Ways"/>
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section 5



This Configuration Card should be printed on standard copy paper, measuring 6.8 x 2.8 inches (152 x 68 mm).
If printing from a PDF file, turn off the "shrink to fit" option in your printer settings for proper scale.

CONFIGURATION CARD
for VENDING
Fill in Sections 2 through 5

AmusementOnly.com

Need Assistance?
Call 480-641-9733
7:30 - 2:30 Pacific
Let Us Help!

INSERT THIS SIDE UP, THIS END FIRST
USE BLACK INK, FILL OVALS COMPLETELY

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SECTION 2 Pulse(s) per Dollar (sum of selected values)

<input type="checkbox"/> 44	<input type="checkbox"/> 4
<input type="checkbox"/> 22	<input type="checkbox"/> 2
<input type="checkbox"/> 11	<input type="checkbox"/> 1
<input type="checkbox"/> 0	None

Pulse Speed: Slow Fast

Lighted Brand: Solid On Flashing

SECTION 3

<input type="checkbox"/> Bill 1 (\$1)	<input type="checkbox"/> Bill 2 (\$5)
<input type="checkbox"/> Bill 3 (\$10)	<input type="checkbox"/> Bill 4 (\$20)
<input type="checkbox"/> Bill 5 (\$50)	<input type="checkbox"/> Bill 6 (\$100)
<input type="checkbox"/> Bill 7	<input type="checkbox"/> Bill 8
<input type="checkbox"/> Bill 9	<input type="checkbox"/> Bill 10
<input type="checkbox"/> Bill 11	<input type="checkbox"/> Bill 12

Example: To accept US\$1, \$5, and \$10, fill in the ovals for Bill 1, Bill 2, and Bill 3.

Security Level: High Low

Insert Direction: Front up, Left Tail All 4 Ways

SECTION 5

○ ○

This Configuration Card should be printed on standard copy paper, measuring 6.3 x 2.6 inches (162 x 66 mm).
If printing from a .PDF file, turn off the "shrink to fit" option in your printer settings for proper scale.

CONFIGURATION CARD
for VENDING
Fill in Sections 2 through 5

AmusementOnly.com

INSERT THIS SIDE UP, THIS END FIRST
USE BLACK INK, FILL OVALS COMPLETELY



Need Assistance?
Call 480-641-9733
7:30 - 2:30 Pacific
Let Us Help!

section 2

Pulses
per Dollar
(sum of
selected
values)

<input type="text" value="04"/>	<input type="text" value="4"/>
<input type="text" value="02"/>	<input type="text" value="2"/>
<input type="text" value="01"/>	<input type="text" value="1"/>
<input type="text" value="0"/>	<input type="text" value="None"/>

Example:
For 30 (04), fill
in the ovals for
02, 04, and 2.
(02+04+2 = 30)

Pulse Speed:

<input type="text" value="Slow"/>	<input type="text" value="Fast"/>
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Lighted Button:

<input type="text" value="Solid On"/>	<input type="text" value="Flashing"/>
---------------------------------------	---------------------------------------

section 3

section 4

Select
Bills to
Enable

<input type="text" value="Bill 1 (\$1)"/>	<input type="text" value="Bill 2"/>	<input type="text" value="(\$5)"/>
<input type="text" value="Bill 3 (\$10)"/>	<input type="text" value="Bill 4"/>	<input type="text" value="(\$20)"/>
<input type="text" value="Bill 5 (\$50)"/>	<input type="text" value="Bill 6"/>	<input type="text" value="(\$100)"/>
<input type="text" value="Bill 7"/>	<input type="text" value="Bill 8"/>	<input type="text" value=""/>
<input type="text" value="Bill 9"/>	<input type="text" value="Bill 10"/>	<input type="text" value=""/>
<input type="text" value="Bill 11"/>	<input type="text" value="Bill 12"/>	<input type="text" value=""/>

Example:
To accept US\$
\$1, \$5, and \$10,
fill in the ovals
for Bill 1, Bill 2,
and Bill 3.

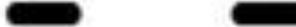
Security Level:

<input type="text" value="High"/>	<input type="text" value="Low"/>
-----------------------------------	----------------------------------

Insert Direction:

<input type="text" value="Face up, Left Tail"/>	<input type="text" value="All 4 Ways"/>
---	---

section 5



This Configuration Card should be printed on standard
copy paper, measuring 6.8 x 2.8 inches (152 x 68 mm).

If printing from a PDF file, turn off the "shrink to fit"
option in your printer settings for proper scale.

**CONFIGURATION CARD
for VENDING**

Fill in Sections 2 through 5