TALOS
OPERATION AND SERVICE GUIDE

General Information

Overview

This Operation and Service Guide contains important information on installing, operating, and maintaining a CPI, Inc. Talos Bill Acceptor. To obtain the best performance from your CPI, Inc. Bill Acceptor, read this manual and the Installation Guide before installing and using the bill acceptor.

Restrictions

For a list of compatible vending machines, consult your CPI sales representative, CPI authorized distributer, or CPI's web site, cranepi.com/support.

Product Summary

Acceptance Rate

- 95% or greater for $1, $5, $10, $20, $50 and $100, at nominal conditions.

Bill insertion

- Lengthwise, four way (Face up/down, either direction).

Transaction Speed

- Approximately four seconds – from bill insertion to completed bill-stacking.

Interface

- See the Interface section on Page 18 for details

Power Sources

- 90 to 135 VAC, 60Hz or 18 to 28 VAC, 60Hz, 22VDC to 45VDC or 12VDC

Power Consumption

- Standby: 5 Watts
- Acceptance: 10 Watts
- Full Stack Max: 50 Watts

Escrow

- One Bill

Shipping Weight

- Four pounds

Environment

- **Operating temperature**: -15°C to 60°C
- **Storage temperature**: -40°C to 70°C
- **Humidity**: 5% to 95% relative humidity (non-condensing), maximum relative humidity of 50% at extreme temperatures.

Bezel Styles

The Talos offers three new bezels:

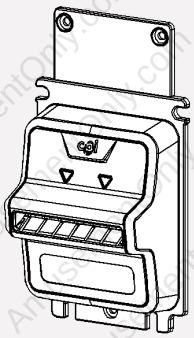
- **The Compact Bezel** allows for ease of bill insertion with lighted arrows pointing to the place of insertion.
- **The VFM Retrofit Bezel** is modelled after the familiar bezel from the VFM Series Bill Acceptor. Dimensions are the same as the standard VFM Series bezel.
- **The High Visibility Bezel** catches the customer's attention with a wide range of LEDs and clearly indicates which denominations the vendor accepts.

It will also work with the legacy VN bezel sets, including:

- **The Compact Bezel**
- **The VFM Retrofit Bezel**
- **High Visibility Bezel**
- **The Flush Mount Bezel**

Bezel Conversion Kits

Bezel Conversion Kits are available to convert one bezel to another style.

Name	Compact Bezel	VFM Retrofit Bezel
Part Number	250011005P	250028086P
Image		

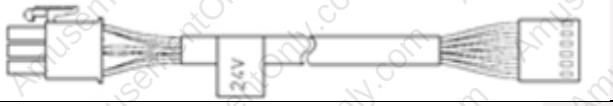
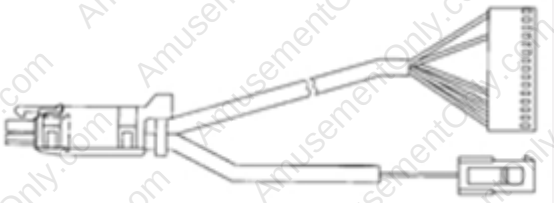
Magazine Styles

The Talos is compatible with the following CPI bill magazines:

Capacity	Access	Part Number
200	Top door removal	250063015
300	Top door removal	250061016
500	Hinged Side-Door Removal	253115019
700	Hinged Side Door Removal	250068021
1000	Hinged Side Door Removal	250060086

If necessary, you can easily replace any magazine with another method of bill removal.

Cables

Cable	Part Number	Image
110VAC Power Cable	250077006	
24VAC Power Cable	250075007	
MDB Cable	250071043	
USB EBDS Cable	250079066P1	
Standard EBDS Cable	250079049P	
12V Battery Cable	250072110P	

Specifications

Power ratings for the units are:

- 110VAC / 60 cycles at 0.5 amps
- 24VAC / 60 cycles at 2.0 amps
- 34 VDC at 2.0 amps (MDB mode)

UL Listing

The Talos is listed under UL File #

Warranty

All Talos bill acceptors come with a Two Year Manufacturer's Warranty. After inspecting the unit, record the model and serial numbers from the label on the side of the bill acceptor. Refer to these numbers when you call CPI for service. The manufacturer's warranty is based upon the date of manufacture.

Parts and labor are included for In-Warranty repairs.

The first three digits of the serial number contain the manufacturing date code. This code indicates the beginning of the warranty period. The first two digits indicate the week of manufacture; the third digit indicates the year of manufacture. For example: a bill acceptor with a serial number of 30720033333 was manufactured in the 30th week of 2017 (July 2017).

INSTALLATION

Please note that a single page installation guide for the Talos can also be found on our website.

Unpacking the Bill Acceptor

Unpack the bill acceptor and immediately inspect it for damage. If the unit is damaged, return it to its original carton along with packing materials.

Notify the delivering carrier of damages and request immediate inspection. Send a letter of intent to file a claim to the delivering carrier within 72 hours from the time of delivery. Send a copy of the letter to the shipper.

Only the person or company receiving the bill acceptor can file a claim against the carrier for concealed damages. Keep the original packing materials for shipping or transporting the bill acceptor.

Mounting

The Talos mounts easily onto existing studs provided by Original Equipment Manufacturers (OEMs).

Some vending machines require brackets or faceplates to mount the unit properly. Refer to the vending machine's operation manual or contact your distributor/OEM for more model-specific mounting information.

1. Turn off power to the vending machine.
2. Mount the Talos bill validator on the mounting studs, through the opening in the front of the vendor and secure using the included hardware.
3. Connect the Talos bill validator to the MDB harness. Apply gentle pressure to connect; the pins will bend if forced.
4. Turn on power to the vending machine.
5. Check the LEDs on the front of Talos. The LEDs should be flashing. In some cases, the machine door must be closed first.
6. Once the LEDs are flashing, test the validator with a $1 bill.
    a. Insert $1 and confirm that it stacks and credit is given.
    b. Repeat this process for any other enabled bills.
7. When your test is complete, remove the test bills from the bill magazine.

OPERATION

Functional Overview

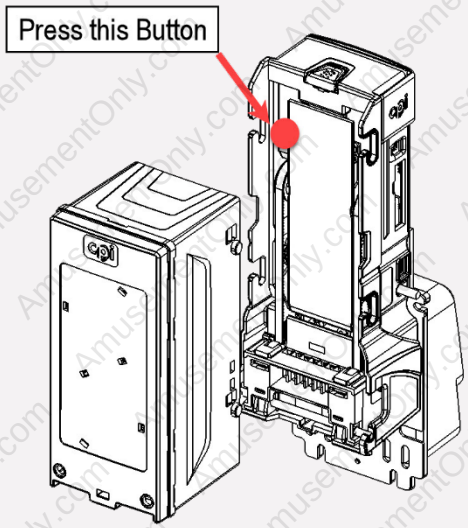
The Talos performs on the following processes to accept, validate and process a bill:

Process	Details
Bill detection	Talos senses the bill and prepares the drive motor.
Bill transport	Drive belts pull the bill into the machine.
Bill recognition	Internal sensors scan the bill to determine value.
Bill validation	The bill is held in escrow as it is validated as a real bill.
Credit or return	Credit is applied if the bill is valid or the bill is returned to the customer if not.
Bill Storage	The bill is stacked into the cassette or recycler.

Enabling Bills and Vend Coupons

Follow this process to enable or disable bills or vend coupons:

1. Remove the bill magazine, then use a pencil or a screwdriver to press the button to enter configuration mode:



2. Reattach the bill magazine.
3. Insert the bill or vend coupon.
4. The bezel LEDs flash when the bill or vend coupon is returned.
5. Count the flashes to determine the outcome using the chart on the next section.

Coupon Configuration

The Talos can be configured using a configuration coupon. This coupon is included in the Installation Guide. Copies of the original coupon may be produced with a standard, carbon-based, non-color copier. Cut copies to match the size of the original coupon.

The coupon selection will be stored in the unit until it is reprogrammed, even if power is removed.

When filling out the coupon, note the following:

- Use only a #2 pencil to fill in the blocks
- Fill in the entire block
- Do not mark the coupon outside the blocks or on the back of the coupon
- Fill ONE block for every line.

The unit is pre-configured with the following options enabled:

- Accept $1 bills
- Four way accept

Use the included coupon to change the settings:

1. Carefully cut out the coupon
2. Fill out each line using an HB or #2 pencil

Section	Changes	Options
1	Bill Way Accepted	1 – Face up in one direction (Green Seal First) 2 – Face up in either direction 4 – Face up or down in either direction
2	Bills Enabled	On or off to enable or disable a bill
3	Recycled Bill	Can be left blank, but is required for the recycler
4	Accept Inhibit	Requires a recycler
5	Acceptance Mode	Mode 0: Factory default. No acceptance modes active. Mode 1*: If fraud is detected the validator enters an out-of-service time-out, the stacker plate extends into the bill magazine and the bezel LEDs flash. If any sensors are blocked, the time-out persists until the blockage is cleared. Mode 2*: All the features of Mode 1, plus the stacker plate extends into the bill magazine when idle. Mode 3*: All the features of Mode 2, but more aggressive. It may increase jams and service calls. Mode 3 is recommended for temporary use only. *Requires power

3. Insert the configuration coupon and verify the settings were accepted by counting the bezel flashes:

Flashes	Meaning
10	Configuration coupon accepted and unit successfully programmed
1 – 5	Coupon rejected. The number (1 – 5) of flashes corresponds to the coupon section that was improperly filled out.
7	Coupon not read. Confirm the coupon is correct and try again.

CPI SYNQ

The Talos was designed in tandem with the CPI Synq. CPI Synq is a connected platform that enables simplified full-system diagnostics and remote management of CPI payment devices on any machine, all in the palm of your hand.

CPI Synq redefines your cash experience:

- Simple, visual diagnostics
- Video instruction and guided troubleshooting
- Configuration controls
- Optimal cash float in the machine
- Remote system monitoring
- Improved up-time in the field
- Lower total cost of ownership across all CPI Synq connected devices

Features

Feature	Description
MDB Sniffing	Get at-machine or remote diagnostics, enabling fast and accurate troubleshooting which reduces cost of ownership.
PayRange mobile payment compatible	Increase sales by enabling remote payment options.
Performance analytics	Monitor your route with the Simplifi DMS
Over-the-Air software and currency updates	Remote software changes lower cost of ownership by cutting down on time spent at the machine
Asset Management	Change device configurations easily via the app

Installation

Create an Account

Visit **cranesimplifi.com/register/Synq** to create an account. This only needs to be done at the operator level, and only needs to be done one time.

Download the Simplifi app

Search the iPhone App Store for “Simplifi”and download it to your mobile device.

Assign the Synq

Each Synq must be registered via the Simplifi app, which requires internet access to complete the registration process.

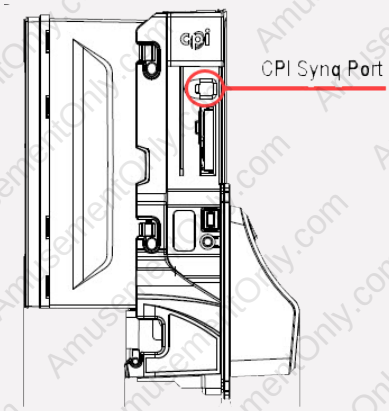
1. Connect the Synq via MDB to a power source and open the Simplifi App (See Installation for Synq power connection details).
2. On the POS list, locate the device labeled “Unknown POS”
3. Press the + icon next to “Unknown POS” and name the Synq to help identify it later. For example, “Second Floor Snack Machine”.
4. Once you’ve named the Synq, the registration process is complete. It is ready to be installed into a vendor. See Installation for details.

The Synq will now appear in your list of devices when you are within Synq’s 100ft broadcast range.

If you ever need to unregister a device, press and hold the button on the side of the Synq to activate Discovery Mode. Discovery Mode allows you to re-assign the Synq. If you do not re-assign, the Synq reverts to current state.

Connect the Synq to Talos

CPI Synq can be installed in series, anywhere on the MDB line that makes it easy for you to operate. Both ends of the MDB must be connected and the four pin connector should be inserted into the CPI Synq port on the Talos:



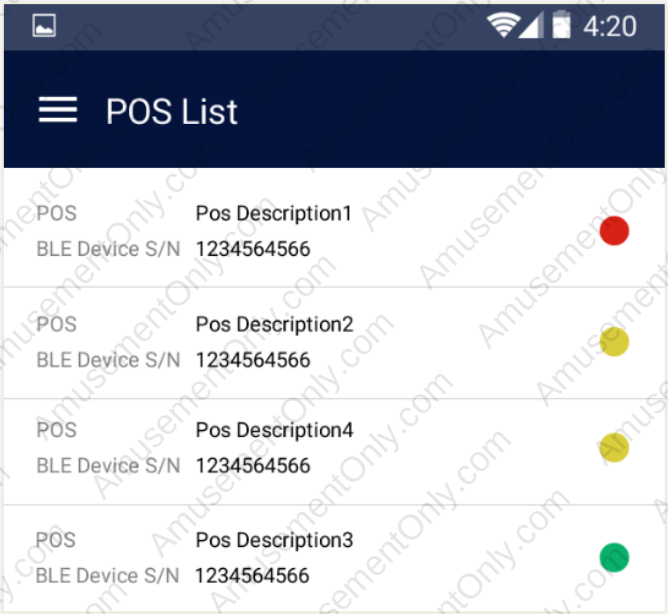
Synq Simplifi App

Our simple app features troubleshooting and video tutorials for common vending errors, in addition to providing easy-to-use configuration and diagnostic tools.

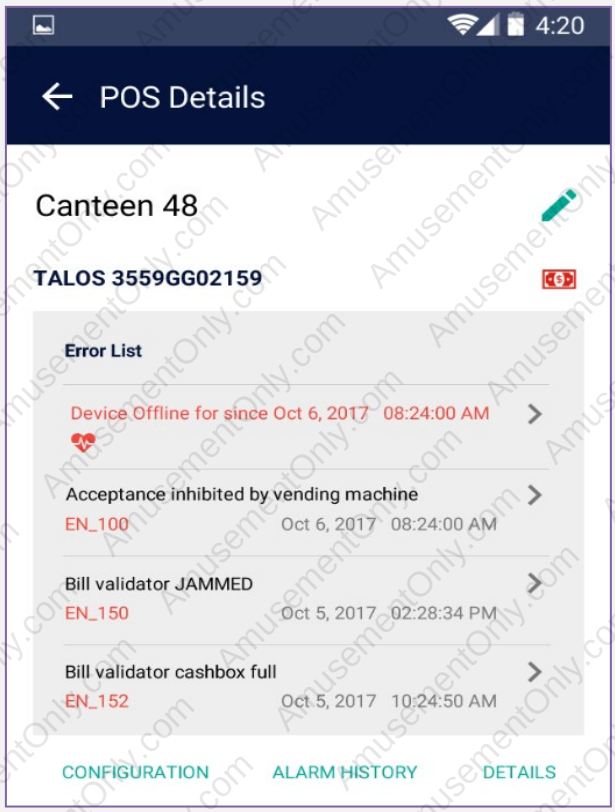
Troubleshooting with the Synq App

When in range of Synq enabled vendors, our beacon technology allows you to quickly review the health of your machines. The clean design and at-a-glance icons greatly reduce the time spent on service calls.

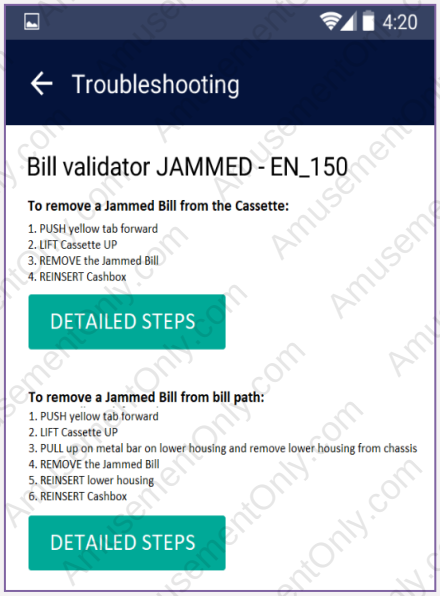
Each vendor is listed with its serial number and a colored icon indicating its general health. Green is healthy, yellow is needs attention and red is out of service.



Tapping any vendor on the list gives access to all alarms from all its peripherals, allowing the technician to quickly identify problems. Each alarm is listed in priority order, with simple one-line descriptions of each alarm:

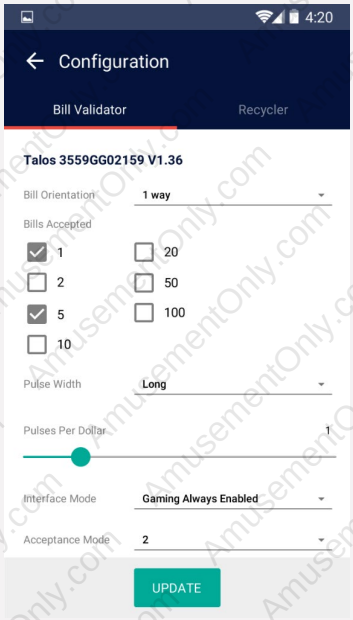


Tapping any error gives the user access to a troubleshooting guide. One more tap provides more detailed troubleshooting steps and/or instructional videos to encourage single-visit solutions:



Configuring Talos with the Synq App

You can make basic configuration changes to the Talos when using the Synq app. Connect to the Talos you'd like to configure and then select your preferences and tap update to save your changes.



Synq Error Codes

The Status LED on the side of the Synq provides at-a-glance information about the Snyq's health.

Color	Sequence	Meaning
Green	Steady On	Synq is working properly
Red and Green	Alternating	Boot up sequence
Green	Fast Flashing	Active connection to Simplifi App
Green	Slow Flashing	Updating Firmware/Configuration
Amber	Steady On	Synq is not assigned
Amber	Fast Flashing	Discovery Mode
Red	Unit failure, replace	Unit failure, replace

INTERFACES

The "interface" refers to the transfer of electronic data to and from the bill acceptor and the controlling device. The controlling device in a vending machine is either the machine controller or the coin mechanism. The signals transferred to the bill acceptor are control signals which may include:

- The control system is ready to accept money
- The denomination of bill to accept
- Whether or not bills should be returned from escrow

The Talos is capable of operating with the following interfaces:

Vending Interfaces

Interface	Description
ILLP	Isolated Low Level Pulse
NILLP	Non-Isolated Low Level Pulse
MDB	Multi-Drop Bus
NISR	Non-Isolated Serial

Gaming Interfaces

Interface	Description
NISR	Non-Isolated Serial
IP	Isolated Pulse
NIP	Non-Isolated Pulse
EBDS	Extended Bi-Directional
NIP+	Non-Isolated Pulse+

Features

Features included in the interfaces are Escrow, Lockout, Credit Pulse and Out of Service Line Indication.

Escrow

The bill can be held indefinitely and then can either be accepted or returned prior to being stacked. Escrow allows a vending machine control system to decide whether or not the last valid bill inserted will be credited or returned to the user.

Normally, a valid bill will be accepted and held in mid-transport. At this point, the bill acceptor will transmit the value of the bill. The control system then decides to keep or return the bill.

If the bill was kept, the bill acceptor completes transportation of the bill and transmits confirmation that the bill was stacked.

Accept Enable (Lockout)

The accept enable feature allows the control system the option of disabling the Bill Acceptor. This function is controlled by the "Accept Enable" interface lines.

Out of Service Line Indication

The Talos Bill Acceptor provides, as part of the interface connector, an out of service indicator signal. The out of service signal will be active when the bill acceptor is not enabled to accept bills for any reason. Such conditions include: full bill magazine, missing bill magazine, all denominations disabled, jams, and internal malfunctions. The output, when active, sources 10ma at 5 Volts DC.

An out-of-service output signal is available under all interfaces. The NISR, MDB, and EBDS interfaces also provide serial messages to indicate various out-of-service conditions.

Isolated Low Level Pulse (ILLP) Interface

The ILLP interface is an isolated interface that sends credit information in the form of pulses via the Credit Relay. From one to four pulses (model dependent) per unit of credit is selectable along with two different pulse patterns (model dependent). Optically isolated sink or source inputs provide external acceptance enable control for three different bill types. Escrow return of the last bill is also supported via an optically isolated sink or source ESCROW input.

Connections

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12VDC pin
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	2	16
Earth	Power	21	None	None
Denom 1 ENABLE, High	Input	15	15	15
Denom 2 ENABLE, High	Input	14	14	14
Denom 3 ENABLE, High	Input	13	13	13
ESCROW, High	Input	12	12	12
Denom 1 ENABLE, Low	Input	27	27	27
Denom 2 ENABLE, Low	Input	28	28	28
Denom 3 ENABLE, Low	Input	29	29	29
ESCROW, Low	Input	30	30	30

CREDIT RELAY, Normally Open	Output	16	2	2
CREDIT RELAY, Common	Output	1	1	1
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

Input Signals

The Talos Bill Acceptor is controlled by the Control System via the following four pairs of input signals.

Denomination
1 ENABLE, denomination 2 ENABLE, and denomination 3 ENABLE (High or Low) are three independent, optically isolated input pairs allowing either sink or source enable control for three different bill types. These input pairs are activated by the application of 5VDC1 to ENABLE (High) and GROUND1 to ENABLE (Low). Note that either the High or Low input can be connected directly to its appropriate level while the other input becomes the switched input for controlling the enable function.

Deactivation of any of the signals prevents the appropriate bill from being accepted; however, the control board must provide for a one second timing window after deactivation to allow a bill already in process to be accepted.

Denomination 1 ENABLE, denomination 2 ENABLE, and denomination 3 ENABLE are also used to allow user escrow. The appropriate ENABLE signal

must be disabled according to the timing diagram following acceptance of a bill to keep that bill in the escrow position pending further instruction of the ESCROW signal. Reactivation of the ENABLE signal without deactivation of the ESCROW signal will credit the bill.

Escrow
(High or Low) is an optically isolated input pair allowing either sink or source escrow control. This input pair is activated by the application of 5VDC2 to ESCROW (High) and GROUND1 to ESCROW (Low). Note that either the High or Low input can be connected directly to its appropriate level while the other input becomes the switched input for controlling the escrow function.

Not activating the ESCROW signal will prevent a bill from being held in the escrow position.

[1]Both 5VDC and GROUND are referenced to the Control System, not the Bill Acceptor.

[2]Both 5VDC and GROUND are referenced to the Control System, not the Bill Acceptor.

In essence, once the credit pulses for a bill have been sent, the bill will automatically be accepted.

Activating the ESCROW signal and disabling the appropriate bill ENABLE signal after the credit pulses for the bill have been sent will hold the bill in the escrow position. Keeping the ESCROW signal active and re-enabling the processed bill ENABLE signal will accept the bill. Disabling the ESCROW signal before enabling the processed bill ENABLE signal will return the bill.

Note: For Talos Bill Acceptors which allow acceptance of higher denomination bills, Denom 1 ENABLE, Denom 2 ENABLE, and Denom 3 ENABLE all must be enabled to activate acceptance of the higher denominations.

Non-Isolated Low Level Pulse (NILLP) Interface

The NILLP interface is a non-isolated interface that sends credit information in the form of pulses via a single, independent TTL compatible, open collector driver. From on e to four pulses per unit of credit is selectable along with two different timing durations (patterns) of the pulses. Optically isolated sink or source inputs provide external acceptance enable control for three different bill types. Escrow return of the last bill is also supported via an optically isolated sink or source ESCROW input.

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12 VDC pin
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	20	16
Earth	Power	21	None	None
Denom 1 ENABLE, High	Input	15	15	15
Denom 2 ENABLE, High	Input	14	14	14
Denom 3 ENABLE, High	Input	13	13	13
ESCROW, High	Input	12	12	12
Denom 1 ENABLE, Low	Input	27	27	27
Denom 2 ENABLE, Low	Input	28	28	28
Denom 3 ENABLE, Low	Input	29	29	29
ESCROW, Low	Input	30	30	30
CREDIT-PULSE_NOT	Output	7	7	7
LOW LEVEL GROUND	Ground	10	10	10
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

Input Signals

The Talos Bill Acceptor is controlled by the Control System via the following four pairs of input signals.

Denomination 1 ENABLE, denomination 2 ENABLE, and denomination 3 ENABLE (High or Low) are three independent, optically isolated input pairs allowing either sink or source enable control for three different bill types. These input pairs are activated by the application of 5VDC[3] to ENABLE (High) and GROUND1 to ENABLE (Low). Note that either the High or Low input can be connected directly to its appropriate level while the other input becomes the switched input for controlling the enable function.

Deactivation of any of the signals prevents the appropriate bill from being accepted; however, the control board must provide for a one second timing window after deactivation to allow a bill already in process to be accepted.

Note: For Talos Bill Acceptors which allows higher denomination bills, Denom 1 ENABLE, Denom 2 ENABLE, and Denom 3 ENABLE all must be enabled to activate acceptance of the higher denomination bills.

Denomination 1 ENABLE, denomination 2 ENABLE, and denomination 3 ENABLE are also used to allow user escrow. The appropriate ENABLE signal must be disabled according to the timing diagram following acceptance of a bill to keep that bill in the escrow position pending further instruction of the ESCROW signal. Reactivation of the ENABLE signal without deactivation of the ESCROW signal will credit the bill.

ESCROW (High or Low) is an optically isolated input pair allowing either sink or source escrow control. This input pair is activated by the application of 5VDC1 to ESCROW (High) and GROUND1 to ESCROW (Low). Note that either the High or Low input can be connected directly to its appropriate level while the other input becomes the switched input for controlling the escrow function.

Not activating the ESCROW signal will prevent a bill from being held in the escrow position. In essence, once the credit pulses for a bill have been sent, the bill will automatically be accepted.

Activating the ESCROW signal and disabling the appropriate bill ENABLE signal after the credit pulses for the bill have been sent will hold the bill in the escrow position. Keeping the ESCROW signal active and re-enabling the processed bill ENABLE signal will accept the bill. Disabling the ESCROW signal before enabling the processed bill ENABLE signal will return the bill.

[3]The +5VDC is referenced to the CS/CM, not the Bill Acceptor. Although the GROUND is common to both, the signal input is controlled by the CS/CM.

Multi-Drop Bus (MDB)

The Multi-Drop Bus uses a daisy chained five wire interface that includes power and bi-directional communication between the Vending Machine Control board (VMC) and a number of peripherals. The Bill Acceptor is one of those peripherals. Coin Mechs, debit card readers, audit devices, etc. are examples of other peripherals. Electrically, the VMC supplies DC power to each peripheral using two wires and communication signaling to each peripheral using three wires.

MDB communications uses an optically isolated 9600 baud, bi-directional serial interface with the Vending Machine Control board (VMC) as the master and the Bill Acceptor and other as slaves. The VMC communicates to the peripherals using a half duplex polling type protocol. Each peripheral (up to 32) is assigned a unique address, defined commands, and defined response data. During operation, the VMC polls each of the peripherals and interrogates that peripheral with various commands to further control it.

Note: MDB is supported only on 24 VAC/MDB models.

Connections

Pin Name (all pins refer to P1)	Type	24 VAC/MDB pin
MDB NEGATIVE (-)	Power	16
MDB POSITIVE (+)	Power	23
MDB COMMON	Bus Ground	28
MDB MASTER TX	Input	14
MDB MASTER RECEIVE	Output	6
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25
OUT-OF-SERVICE_NOT	Output	22

Non-Isolated Serial (NISR) Interface

NISR-Gaming and NISR-Vending are non-isolated interfaces which provide logic level (TTL/CMOS) serial communications with handshaking. They permit communication of all bill types accepted by the Talos Bill Acceptor, as well as messages pertaining to the status of the Bill Acceptor. The messages appear in the form of an eight bit word per Figure 10.1. The interfaces use one serial output line from the validator (DATA) and three control lines. Two are from the Control System, ACCEPT ENABLE and SEND, and one is from the validator, INTERRUPT. The Bill Acceptor is always passive and only responds with a request to send a message to the control system upon the occurrence of some activity; i.e., bill recognized, accepted, returned, or stacker full.

Connections

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12 VDC pin
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	20	16
Earth	Power	21	None	None
LOW LEVEL GROUND	Ground	10	10	10
SERIAL / PULSE_NOT	Input	9	9	9
ACCEPT-ENABLE_NOT	Input	24	24	24
SEND_NOT	Input	26	26	26
INTERRUPT_NOT	Output	8	8	8
SERIAL DATA OUT	Output	11	11	11
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

The Bill Acceptor is controlled by the Control System via the following input signals:

Accept Enable

Logic low allows bill acceptance for all bills. When a bill has been accepted, the status of this line determines whether the bill is to be credited or returned. A one second delay must be allowed when this line is de-activated (transition to the high state) to allow a bill already in process to be accepted.

Send

In response to an INTERRUPT signal, the control system will supply a SEND signal to cause the serial transfer of the data message from the validator. A control system request for retransmission of the data message will be initiated as per the timing diagram of Figure 10.2.

Serial/Pulse

This line must be disconnected to use the NISR interface.

Isolated Pulse (IP) Interface

The IP interface is an isolated interface that sends credit information in the form of pulses via a single uncommitted relay. From one to four pulses (contact closures) per unit of credit is selectable along with two different timing durations (patterns) of the pulses (model dependent). The control system cannot alter the validator's operation in this interface. Escrow return of the last bill is NOT supported.

Connections

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12 VDC/Bat
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	20	16
Earth	Power	21	None	None
CREDIT RELAY, Normally Open	Output	16	2	2
CREDIT RELAY, Common	Output	1	1	1
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

Input Signals

None

Non-Isolated Pulse (NIP) Interface

The NIP interface is a non-isolated interface that sends credit information in the form of pulses via either a pair of relay contacts or a single open collector driver. From one to four pulses per unit of credit is selectable along with two different timing durations (patterns) of the pulses (model dependent). One input is provided to enable or disable bill acceptance (lockout). Escrow return of the last bill is NOT supported.

Connections

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12 VDC pin
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	20	16
Earth	Power	21	None	None
LOW LEVEL GROUND	Ground	10	10	10
SERIAL / PULSE_NOT (must be tied low)	Input	9	9	9
ACCEPT-ENABLE_NOT	Input	24	24	24
CREDIT-PULSE_NOT	Output	7	7	7
CREDIT RELAY, Normally Open	Output	16	2	2
CREDIT RELAY, Common	Output	1	1	1
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

Input Signals

The Talos Bill Acceptor is controlled by the Control System via the following input signals.

Accept Enable

Accept Enable is an active low logic input. Normally, this line is held low to enable the acceptor. If raised (high), the acceptor will be disabled. While the acceptor is disabled, it will not start the transport motors to accept a bill.

If the Accept Enable line is raised after the bill is stopped and before the credit pulses are sent (during the bill validation process), the bill will be returned. Note that the bill only stops to be validated; no escrow takes place.

Serial/Pulse

This line must be held low in order to enable the NIP interface.

Extended Bi-Directional Serial Interfaces (EBDS)

The AE2600 and AE2800 support EBDS in Gaming Interface Only. The acceptor will detect which interface the control system is using by counting the number of data bytes that the controller is transmitting and will verify the format.

EBDS is used to communicate between an AE2600/AE2800 and a “Controller”. In a typical application, the Controller is a processor which is telling the bill acceptor when to acceptor when to accept currency, which denomination(s) (e.g. $1, $5, $10..) are to be accepted, when to return a bill to the customer, etc. The bill acceptor is telling the Controller what denominations are being fed into the acceptor, when to issue credit for these bills, when it is just idling, stacking or returning a bill, etc.

The functionality of the bill acceptor (which denominations to accept, whether to hold a bill in escrow, etc.) can be changed in real-time by the controller while the system is operational. There is no need to power down the system and/or manipulate dip switches on the bill acceptor’s control board.

Connections

Pin Name (all pins refer to P1)	Type	115 VAC pin	24 VAC pin	12 VDC pin
115VAC HOT / 24VAC HOT/ 12VDC HOT	Power	20	3	19
115VAC NEUTRAL / 24VAC NEUTRAL/ 12VDC Return	Power	4	20	16
Earth	Power	21	None	None
LOW LEVEL GROUND	Ground	10	10	10
SERIAL DATA IN (Master Out)	Input	26	26	26
SERIAL DATA OUT (Master In)	Output	11	11	11
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25	25	25
OUT-OF-SERVICE_NOT	Output	22	22	22

Non-Isolated Pulse+ (NIP+) Interface (12V Battery Only)

The NIP interface is a non-isolated interface that sends credit information in the form of pulses via either a pair of relay contacts or a single open collector driver. From one to four pulses per unit of credit is selectable along with two different timing durations (patterns) of the pulses (model dependent). One input is provided to enable or disable bill acceptance (lockout). Escrow return of the last bill is NOT supported

Note: NIP+ is supported only on 12V Battery models.

Connections

Pin Name (all pins refer to P1)	Type	12VDC Battery pin
12VDC HOT	Power	19
12VDC RETURN	Power	16
LOW LEVEL GROUND	Ground	10
SERIAL / PULSE_NOT (must be tied low)	Input	9
INHIBIT+	Input	24
CREDIT-PULSE_NOT	Output	7
SERVICE+	Output	8
OUT-OF-SERVICE POWER (200 ohms to +5VDC)	Output	25
OUT-OF-SERVICE_NOT	Output	22

The Talos Bill Acceptor is controlled by the Control System via the following input signals.

Inhibit+

This is an active low logic input. Normally, this line is held low to enable the acceptor. If raised (high), the acceptor will be disabled. While the acceptor is disabled, it will not start the transport motors to accept a bill.

Serial/Pulse

This line must be held low in order to enable the NIP interface.

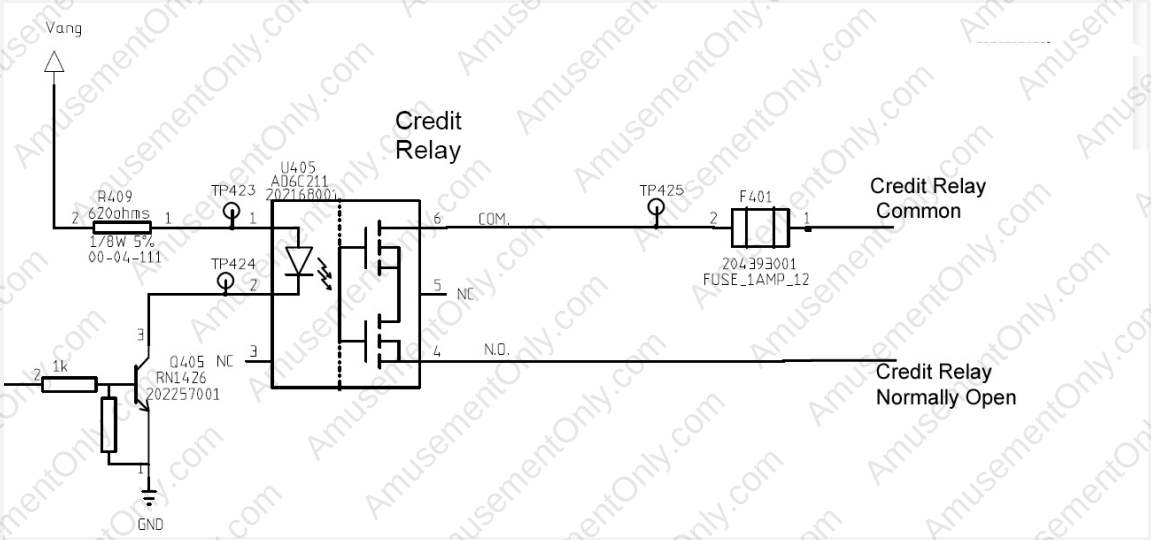
Pulse Outputs

Pulse Timing

- Vending
  - Short = 30ms ON with 50ms between pulses (off) ± 5ms
  - Long = 35ms ON with 300ms between pulses (off) ± 5ms
- Gaming
  - Short = 50ms ON with 50ms between pulses (off) ± 5ms
  - Long = 60ms ON with 300ms between pulses (off) ± 5ms

Credit Relay (Isolated)

- Voltage to “Credit Relay Normally Open” supplied by VMC
- “Credit Relay common” also supplied by VMC.



Credit Pulse (Non-Isolated)

- Open collector output must be tied to a voltage through a pull-up resister on the Control System. The voltage is typically 5 to 12VDC.

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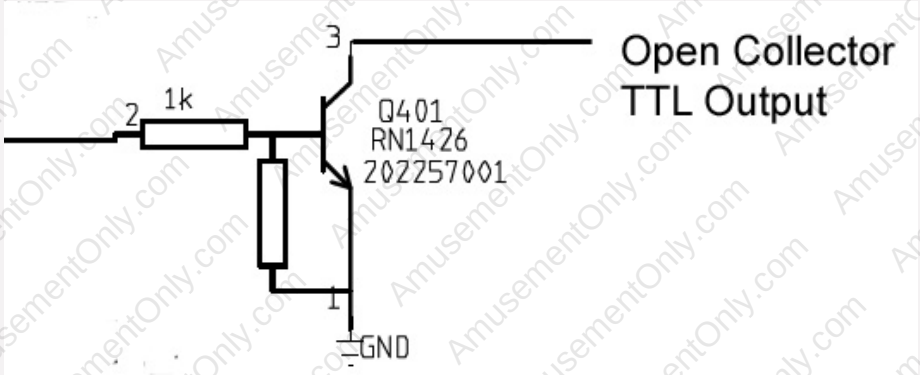
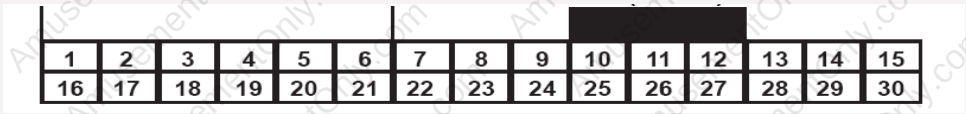
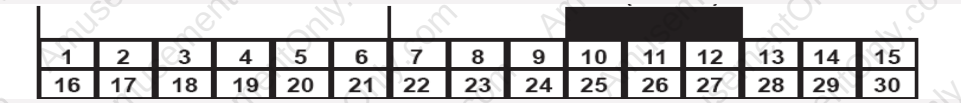


PINOUT INFORMATION FOR 30 PIN CONNECTOR (CONT.)



GAMING AND LOTTERY PINOUTS ONLY				
Pinou	**115 Volt AC Model**	**24 Volt AC Model**	**12Volt DC Model**	**12 Volt Battery**
Pin 1	CREDIT RELAY	Same	Same	Same
Pin 2	RESERVED	CREDIT RELAY N.O.	CREDIT RELAY	CREDIT RELAY
Pin 3	RESERVED	24 VAC HOT power	RESERVED	RESERVED
Pin 4	115 VAC NEUTRAL	RESERVED	RESERVED	RESERVED
Pin 5	RESERVED	**KEY**	**KEY**	**KEY**
Pin 6	**KEY**	RESERVED	RESERVED	RESERVED
Pin 7	CREDIT PULSE	Same	Same	Same
Pin 8	INTERRUPT_NOT	Same	Same	SERVICE+
Pin 9	SERIAL/PULSE _NOT	Same	Same	GROUND
Pin	LOW LEVEL GND	Same	Same	Same
Pin	SERIAL_DATA_OUT	Same	Same	Same
Pin	NOT USED	Same	Same	Same
Pin	NOT USED	Same	Same	Same
Pin	NOT USED	Same	Same	Same
Pin	NOT USED	Same	Same	Same
Pin	CREDIT RELAY - Open	DC RETURN	12VDC RETURN	12VDC RETURN
Pin	RESERVED	RESERVED	RESERVED	RESERVED
Pin	RESERVED	RESERVED	RESERVED	RESERVED
Pin	**KEY**	RESERVED	12 VDC HOT	12 VDC HOT
Pin	115 VAC HOT power	24 VAC NEUTRAL	RESERVED	RESERVED
Pin	EARTH GROUND	**KEY**	**KEY**	**KEY**
Pin	OUT-OF-SERVICE	Same	Same	Same
Pin	RESERVED	Same	Same	Same
Pin	ACCEPT	Same	Same	INHIBIT+
Pin	OUT-OF-	Same	Same	Same
Pin	SEND_NOT/SERIAL IN	Same	Same	Same
Pin	RESERVED	Same	Same	Same
Pin	RESERVED	Same	Same	Same
Pin	RESERVED	Same	Same	Same
Pin	RESERVED	Same	Same	Same

PINOUT INFORMATION FOR 30 PIN CONNECTOR (CONT.)



VENDING PINOUTS ONLY				
Pinout	**115 Volt AC Model**	**24 Volt AC /MDB Model**	**12 Volt DC Model**	**12Volt Battery Model**
Pin 1	CREDIT RELAY Common	Same	Same	Not Applicable
Pin 2	RESERVED	CREDIT RELAY N.O.	CREDIT RELAY N.O.	Not Applicable
Pin 3	NEUTRAL ENABLE	24 VAC HOT power	RESERVED	Not Applicable
Pin 4	115 VAC NEUTRAL	HOT ENABLE	RESERVED	Not Applicable
Pin 5	NEUTRAL INHIBIT	**KEY**	**KEY**	Not Applicable
Pin 6	**KEY**	MDB MASTER RECEIVE	MDB MASTER RECEIVE	Not Applicable
Pin 7	$ 1 CREDIT_NOT	Same	Same	Not Applicable
Pin 8	INTERRUPT_NOT	Same	Same	Not Applicable
Pin 9	$ 5 CREDIT_NOT	Same	Same	Not Applicable
Pin 10	LOW LEVEL_GND	Same	Same	Not Applicable
Pin 11	DATA_NOT	Same	Same	Not Applicable
Pin 12	ESCROW, High	Same	Same	Not Applicable
Pin 13	$ 5 ENABLE, High	Same	Same	Not Applicable
Pin 14	$ 2 ENABLE, High	Same w MDB_MASTER_TXD	Same w	Not Applicable
Pin 15	$ 1 ENABLE, High	Same	Same	Not Applicable
Pin 16	CREDIT RELAY - Open	DC RETURN	12VDC RETURN	Not Applicable
Pin 17	RESERVED	NEUTRAL INHIBIT	RESERVED	Not Applicable
Pin 18	HOT ENABLE	NEUTRAL ENABLE	RESERVED	Not Applicable
Pin 19	**KEY**		12 VDC HOT power	Not Applicable
Pin 20	115 VAC HOT power	24 VAC NEUTRAL power	RESERVED	Not Applicable
Pin 21	EARTH GROUND	**KEY**	**KEY**	Not Applicable
Pin 22	OUT-OF-SERVICE_NOT	Same	Same	Not Applicable
Pin 23	RESERVED	MDB_34 Volt DC	RESERVED	Not Applicable
Pin 24	ACCEPT ENABLE_NOT	Same	Same	Not Applicable
Pin 25	$2 CREDIT_NOT /	Same	Same	Not Applicable
Pin 26	SEND_NOT	Same	Same	Not Applicable
Pin 27	$ 1 ENABLE, Low	Same	Same	Not Applicable
Pin 28	$ 2 ENABLE, Low	Same with MDB_COMMON	$2 ENABLE, Low	Not Applicable
Pin 29	$ 5 ENABLE, Low	Same	Same	Not Applicable
Pin 30	ESCROW, Low	Same	Same	Not Applicable

MAINTENANCE

Cleaning

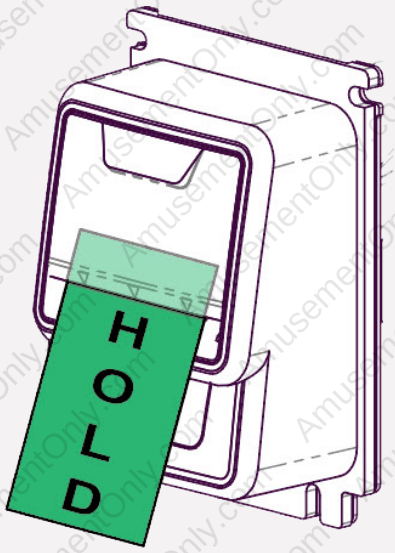
The Talos bill validator will not need to be cleaned as often as magnetic sensing bill acceptors. If cleaning is required, use a soft cloth moistened with a mild, non-abrasive detergent.

You can clean the bill acceptor while it's still mounted in the machine.

1. Remove power from the machine.
2. Unlatch the magazine by pushing the latch located on the top of the unit toward the front of the unit.
3. Unhook and remove the magazine by holding the latch and lifting up and then back on the magazine.
4. Unlatch the Lower Housing Assembly by lifting up on the metal bar.
5. Remove the Lower Housing Assembly by holding the metal bar and pulling back.
6. Clean the bill path with a soft cloth. You may use mild, non-abrasive, non-petroleum based cleaners if sprayed on the cloth.

Bezel LED Error Flash Codes

When the unit is ready and enabled, the bezel LEDs will flash continuously. If the bezel LEDs are off, the unit has an error. To determine the error, partially insert and hold a bill in the bill path until the bezel lights flash. Count the flashes and refer to the chart below.



Flashes	Problem	Solution
None	No power	Restore power to the validator or vendor
1 or 4	Bill path blocked	Check for jams. Remove bill magazine and lower housing assembly and inspect

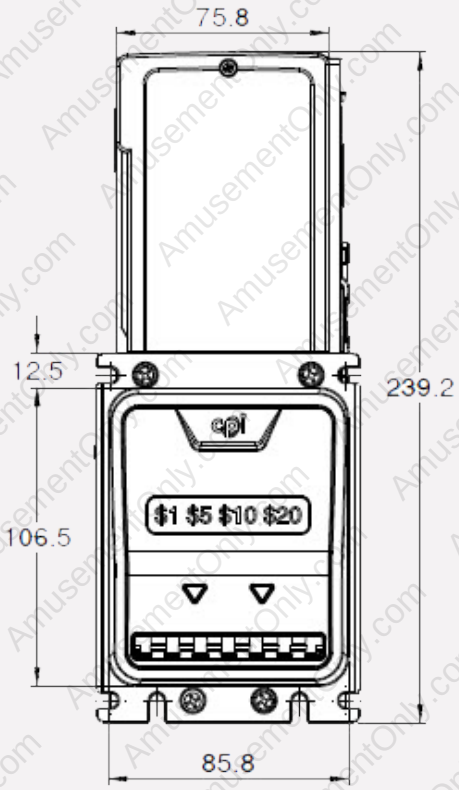
2	Another vending component	Ensure the unit has been enabled, then check: • Vending Machine Controller • Coin manager and coin levels • Inventory levels • The door is locked properly
3	Lower housing assembly	Check that the lower housing assembly is seated. Ensure bill path is clean; see Cleaning section
5	Bill magazine removed	Reattach bill magazine
Continuous Fast	Stacker Full	Empty the bill magazine
Continuous Slow	Unit is defective	Replace the unit

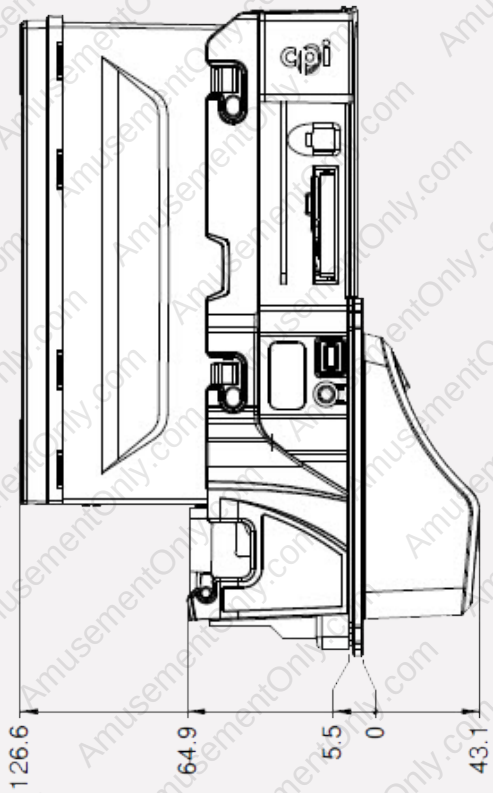
TROUBLESHOOTING

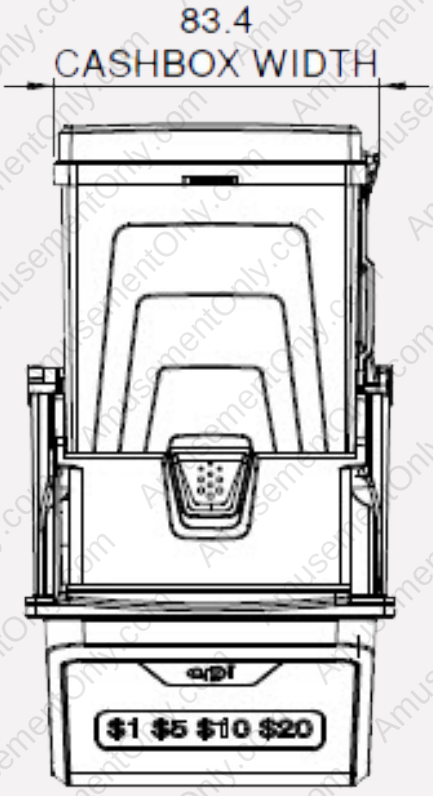
These are some common, easy-to-solve issues that you may occasionally encounter, more troubleshooting information can be found in the CPI Synq app:

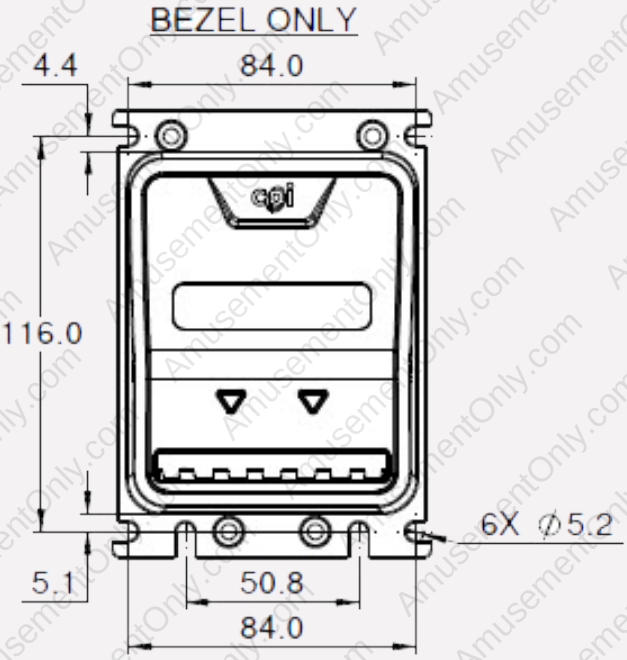
If this happens	Try
The unit will not power up	Check Harnesses: Cables may be loose, not properly connected or pins may be bent. Check Source Voltage: Ensure that power is being supplied to the bill validator.
The unit has power, but will not accept a bill	Ensure the unit has been enabled, then check: • Vending Machine Controller • Coin manager and coin levels • Inventory levels • The vendor door is locked properly

DIMENSIONAL DRAWINGS









FINE PRINT

Owner's Responsibility

Upon request, owner must show proof of purchase when submitting equipment for service during the warranty period. Owner will assume all freight charges for shipment of equipment to an authorized service center while under warranty, and to and from the service center when outside the warranty period. Owner is responsible for out-of-warranty repair expenses, chargeable at prevailing rates set by authorized service centers. Complete written information must be supplied to the authorized service center for all items returned, including serial and model number, and a description of the malfunction.

CPI, Inc. Responsibility

During the warranty period, CPI, Inc. will repair or replace any parts which fail to function properly because of defects in material or workmanship. CPI, Inc. shall not be liable for any consequential damages as a result of defects in material or workmanship.

Damage due to electrical overload, negligence, accidents, misuse, abuse, vandalism, or an act of God is not covered by CPI, Inc. warranty. Any alteration of the product after manufacture voids the warranty in its entirety.

The product to be repaired under warranty must be delivered to an authorized service center. Repairs or installation at the owner's location are not included in the warranty. During the warranty period, CPI, Inc. will assume freight charges for return of the owner's equipment from the closest authorized service center via UPS or common carrier.

Service

For service information, contact CPI, Inc. or any CPI authorized service center. Parts and labor that are CPI, Inc. responsibility will be provided without charge. Other service is at owner's expense.

For service information, or the name of the authorized service center nearest you, contact:

CPI Customer Service

1-800-345-8215

CPI Technical Support

1-800-345-8172 or cranepi.com/support