BEACON-000

Technical Manual

Version

1.0.2

Department

TEC-ME-04389-EN

Creation date

2023-11-20

Audience

Technicians, Customers, etc.

BLUBERI

Version History

Version	Department	Initials	Date	Comments
1.0.0	Engineering	Y.P.	2023-11-20	- First Draft
1.0.1	Engineering	Y.P.	2023-12-06	- Updated Power Rating
1.0.2	Engineering	Y.P.	2023-12-07	- Fixed a typo on 240V rating

Contents

Version History **2**

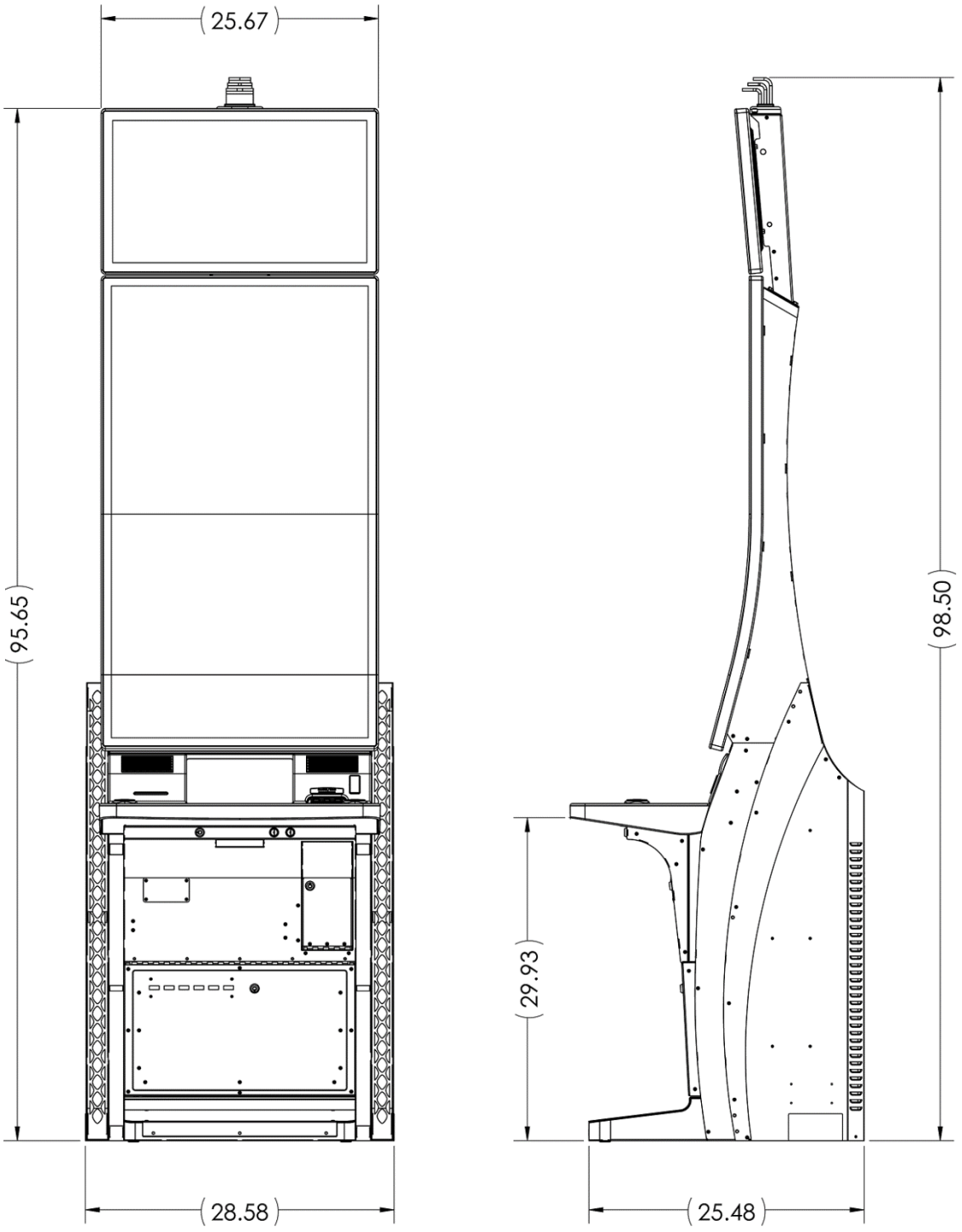
1. Physical Components **5**

1.1. Cabinet Dimensions 5
1.2. Exterior View of the Machine 6
1.3. Candlelight 9
1.4. 27'' Topper 9
1.5. Cabinet Doors 10
1.5.1. Deck Door 10
1.5.2. Player Tracking Drawer 12
1.5.3. Belly Access Panel 13
1.5.4. Footrest Pedestal Cover 14
1.6. Inside View of the Machine 16
1.7. Door Switches 19
1.8. Key Switches 20
1.9. Logic Box 21
1.10. Electrical Components 22
1.10.1. Powering Diagram 22
1.10.2. List of Electrical Components 23
1.11. Gaming Board (CPU) 24
1.12. Peripherals 25
1.12.1. Bill Acceptor 25
1.12.2. Ticket Printer 25
1.13. Deck LCD Panel 26
1.14. Main LCD Monitor 27
1.15. Topper Monitor 28
1.16. Monitor Side LED Lighting 29
1.17. Side Box LED Lighting 30
1.18. Cabinet Back LED Lighting 31
1.19. Mechanical Meters (Optional) 32
1.20. Network 32
1.21. Power Distribution Unit (PDU) 32
1.21.1. Switched AC Outlets 35
1.21.2. Unswitched AC Outlets 35
1.21.3. AC Fault Condition 36
1.22. Sound Amplifier, Subwoofer and Speakers 37
1.23. Power Rating 38
1.24. Environmental 38
1.24.1. Operating 38
1.24.2. Non-operating 38

1.25. Safety / Agency Approval 38
1.26. Electromagnetic Compatibility Compliance (EMC)..... 39
Contact Us..... 40

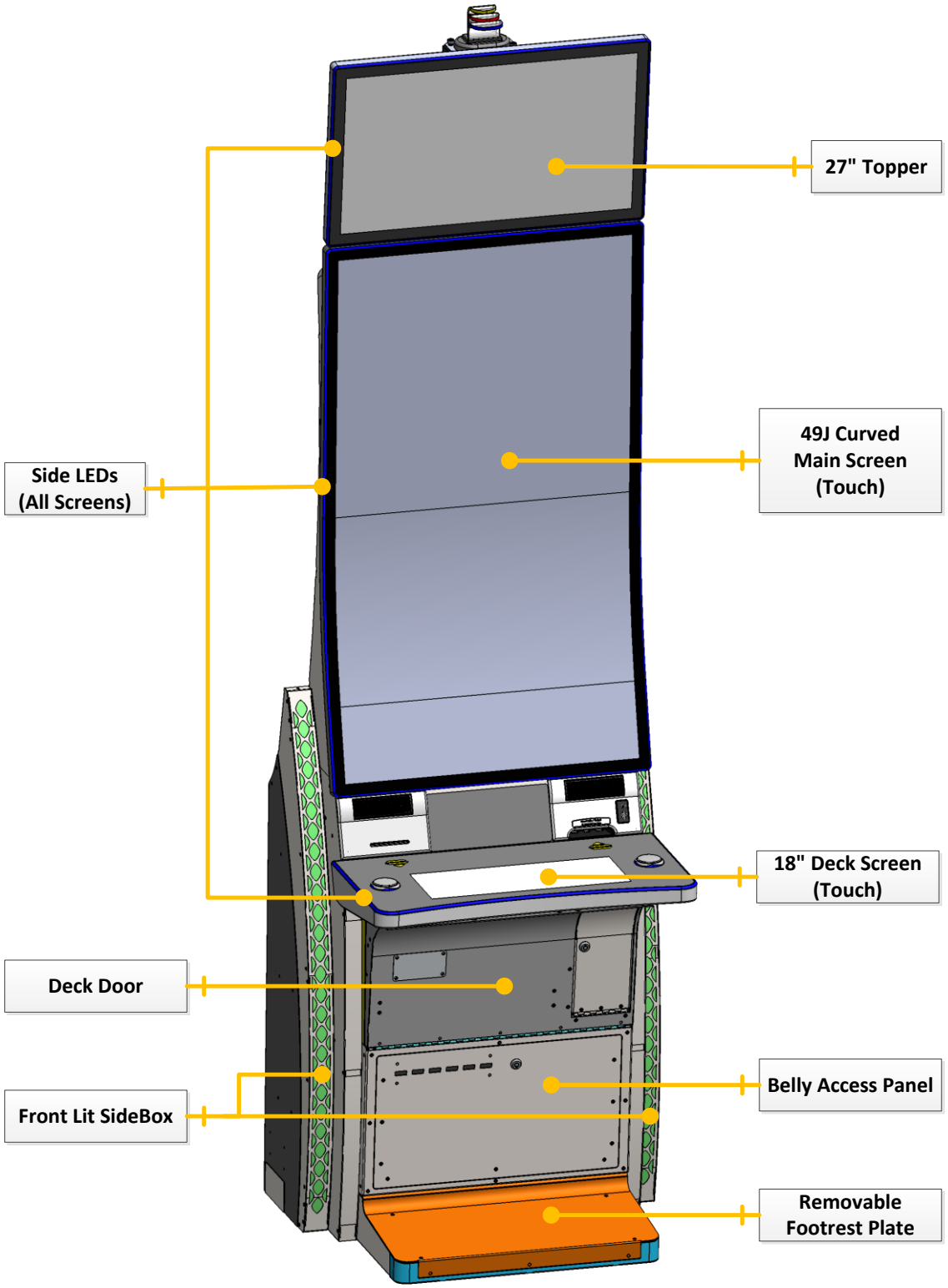
1. Physical Components

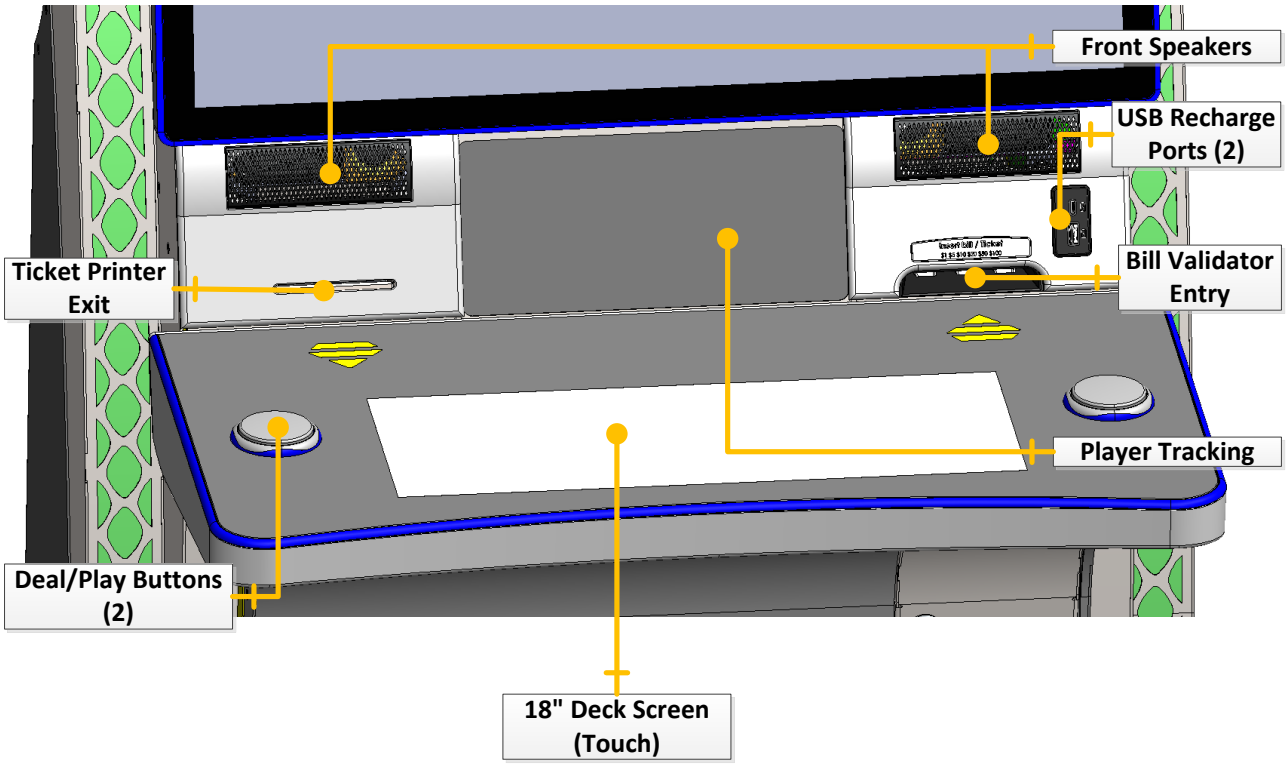
1.1. Cabinet Dimensions

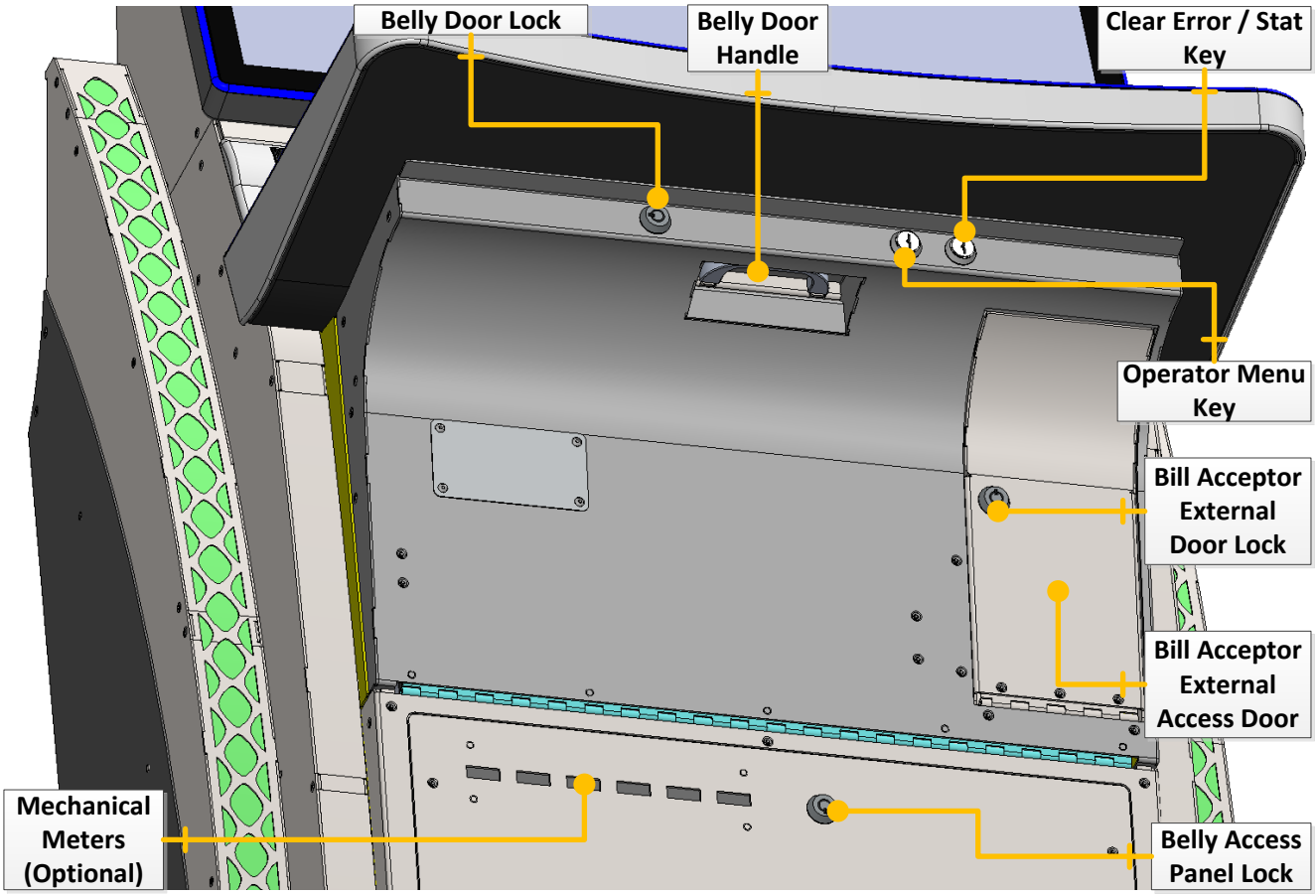


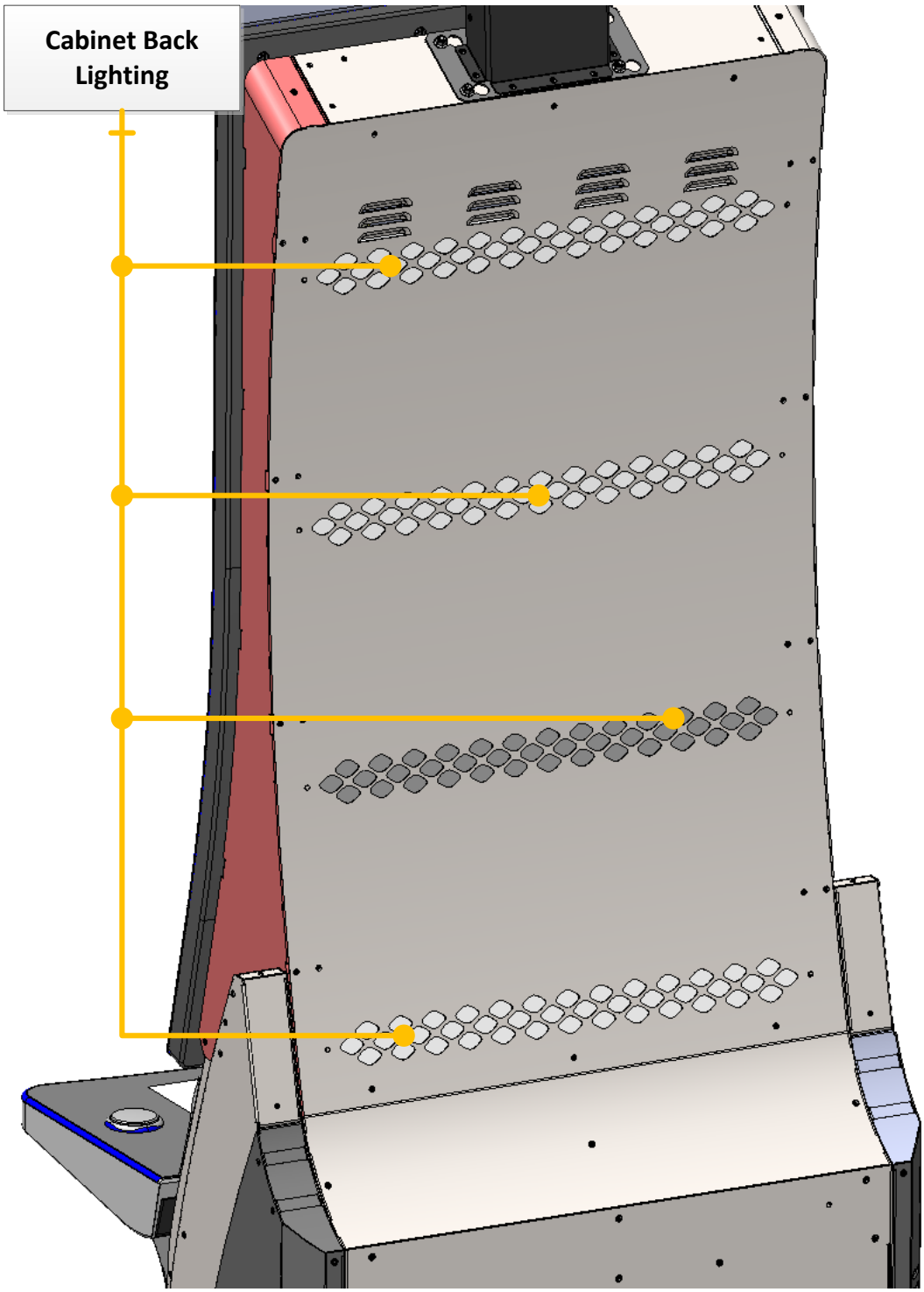
Weight = 170 Kg (375 lbs)

1.2. Exterior View of the Machine



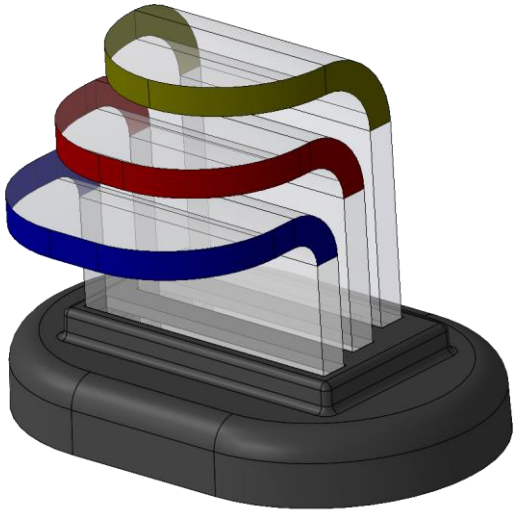






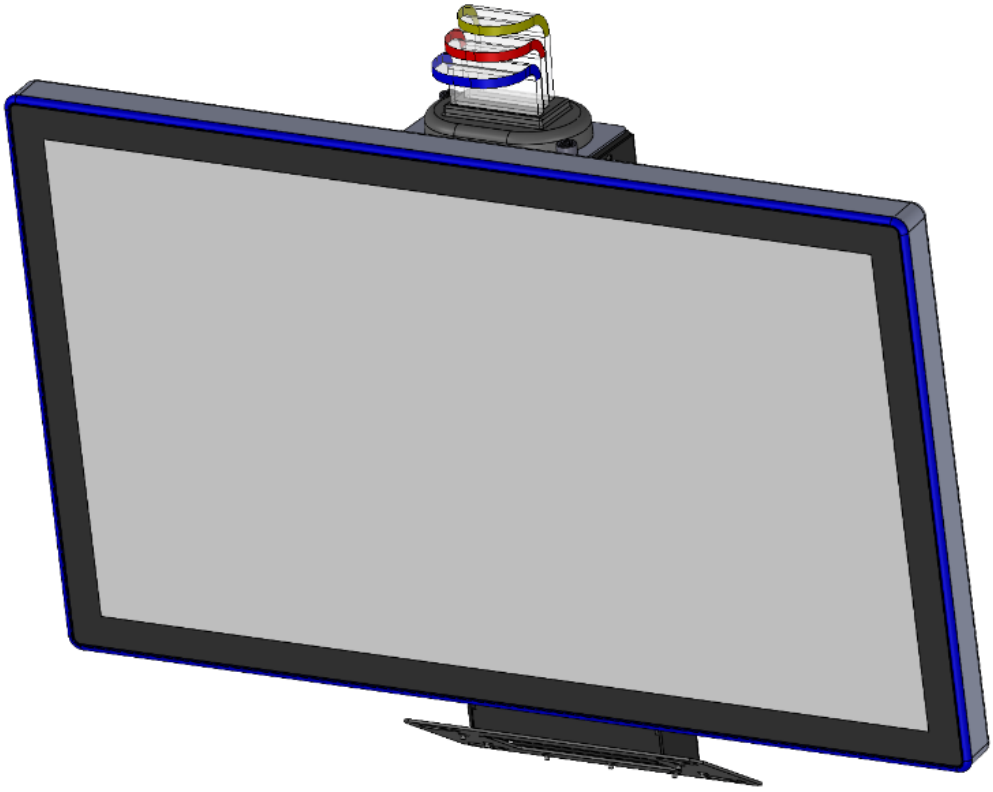
1.3. Candlelight

The candlelight signals different events, such as a door opening, an attendant call or a jackpot win.



1.4. 27’’ Topper

The Beacon cabinet comes with a 27” Topper custom built for the Beacon series.



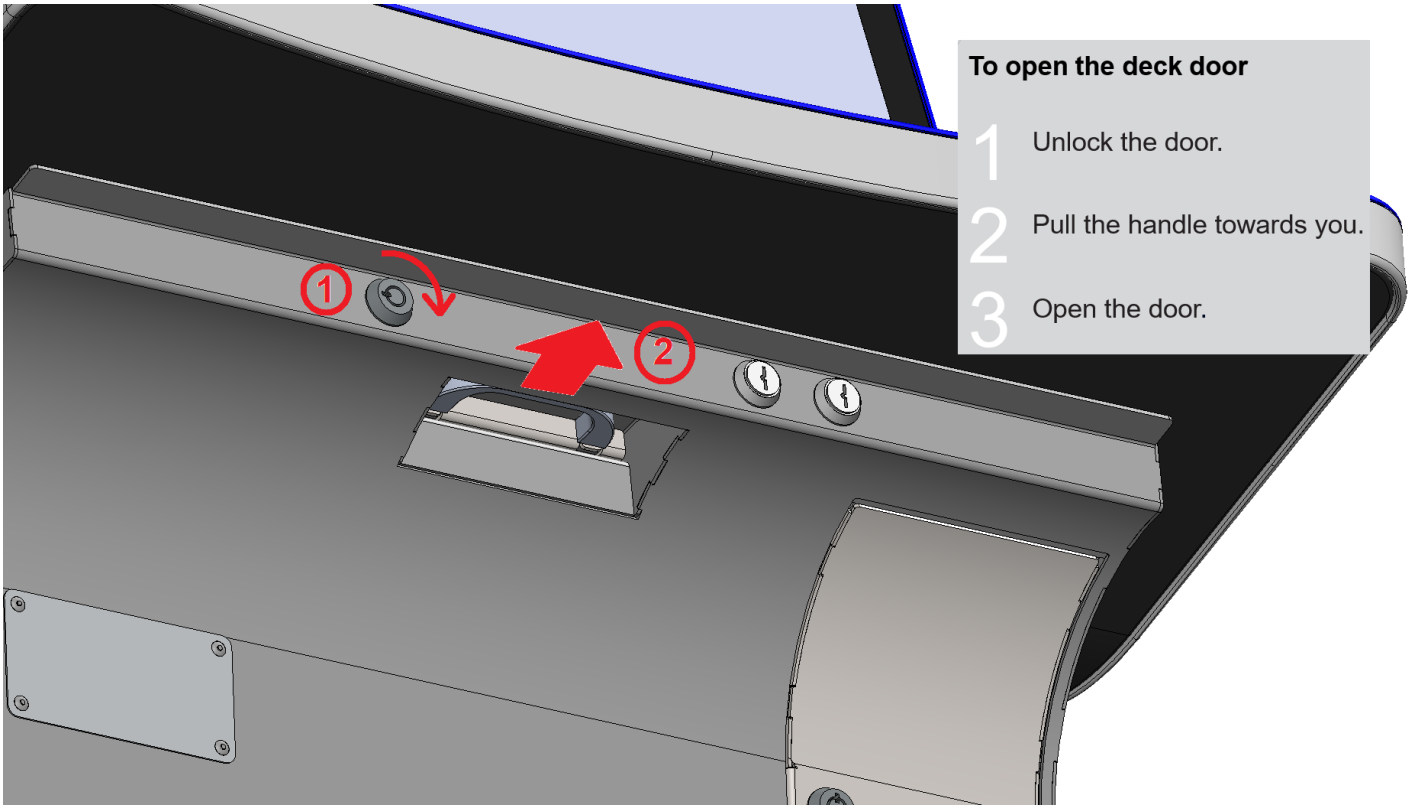
1.5. Cabinet Doors

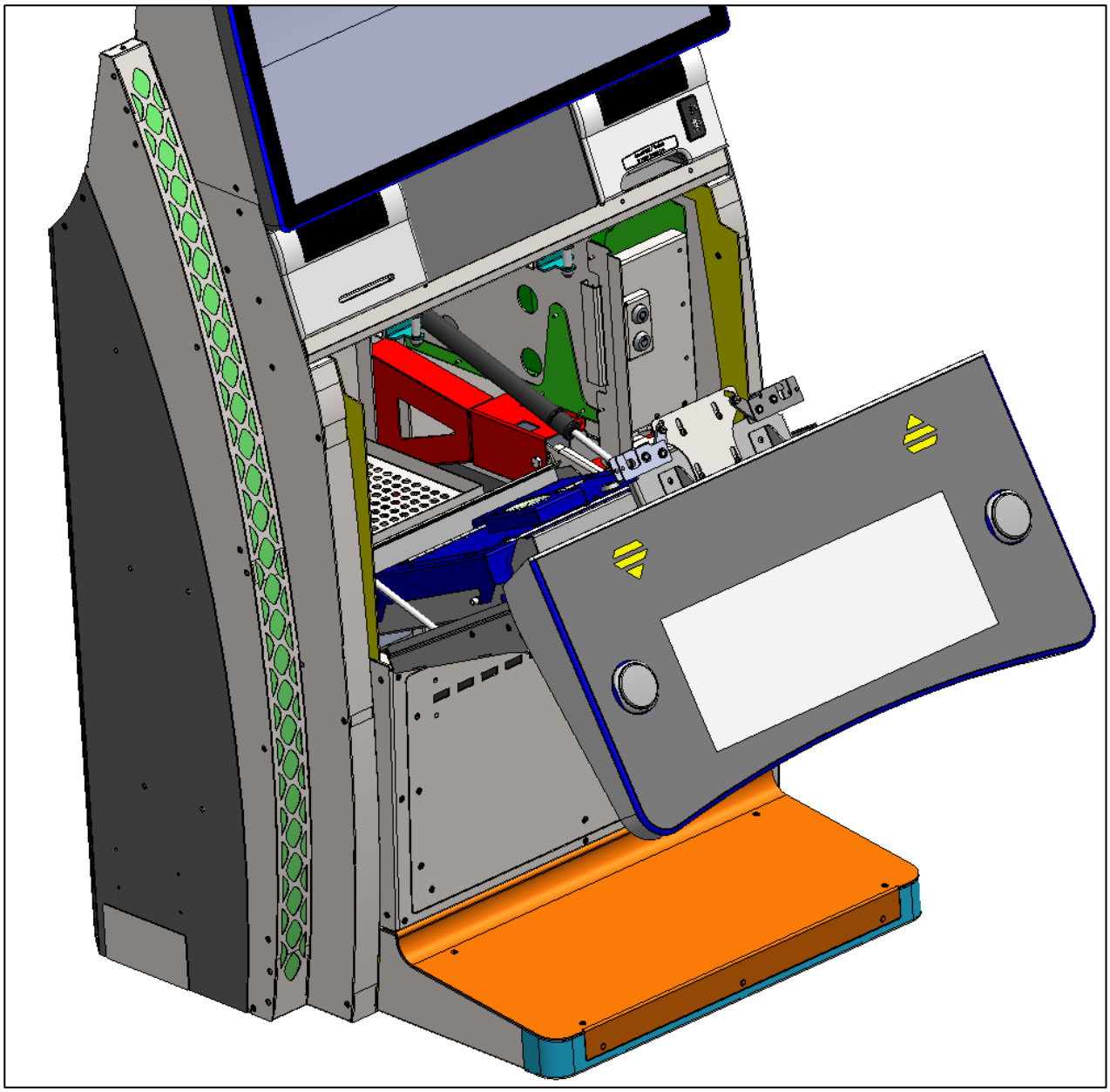
Whenever a door is opened, the tower light flashes. You can open a door safely without losing statistics or interrupting the game in progress.

Keys are provided to unlock various parts of the gaming machine: the deck door, the logic box door, the bill validator door (two levels) and the belly access door.

NOTE: All keylocks use standard 5/8" locks.

1.5.1. Deck Door

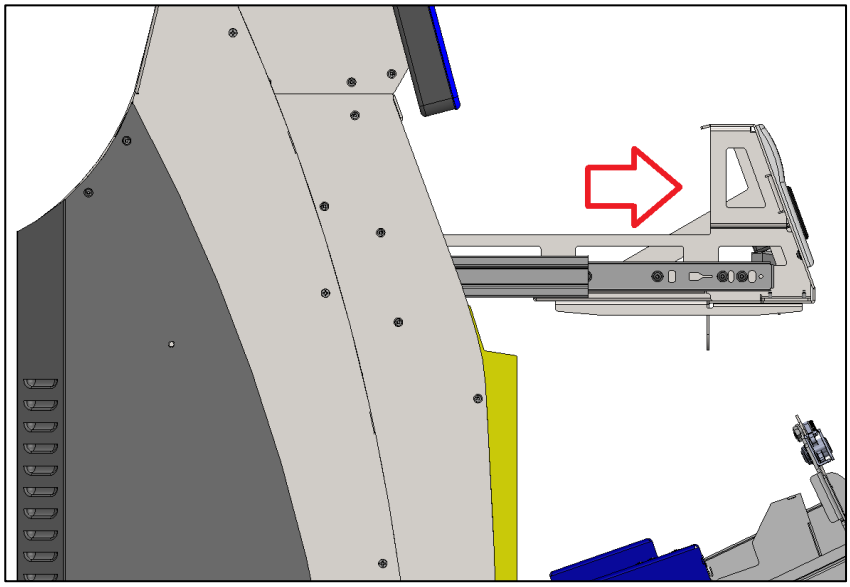


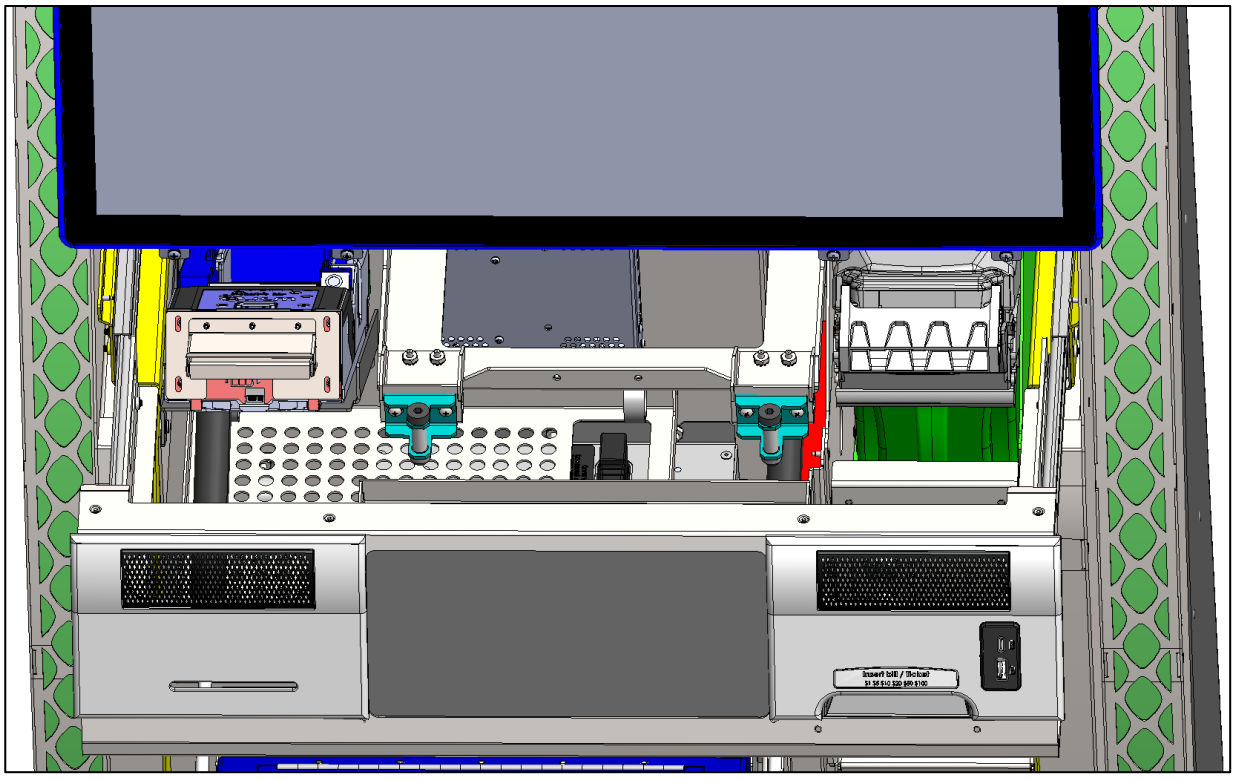


1.5.2. Player Tracking Drawer

To access the printer or the bill validator for maintenance, adding paper, clearing a paper or bank note jam, proceed as follows:

- Open the deck door.
- Pull on the drawer to open it.

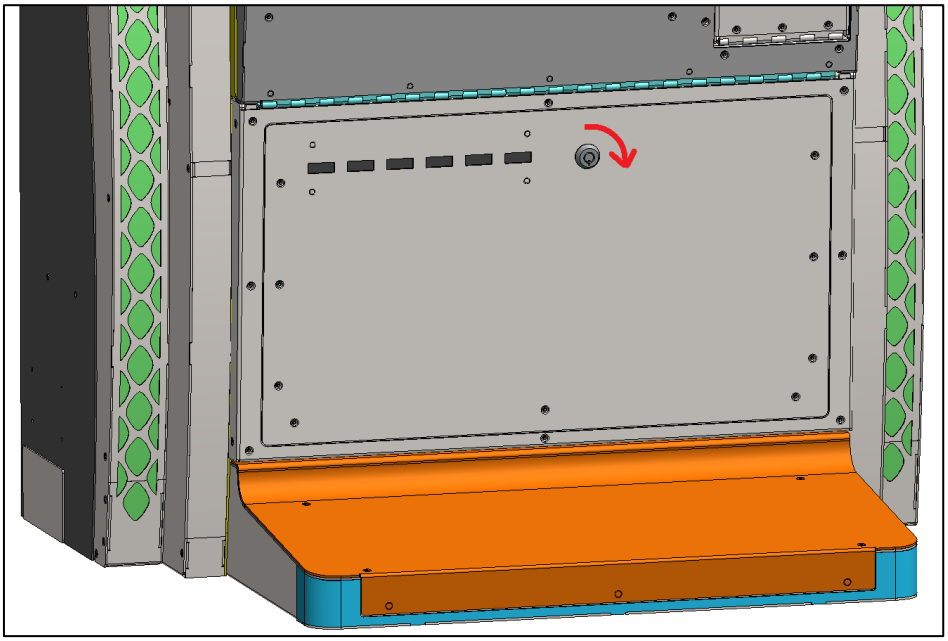




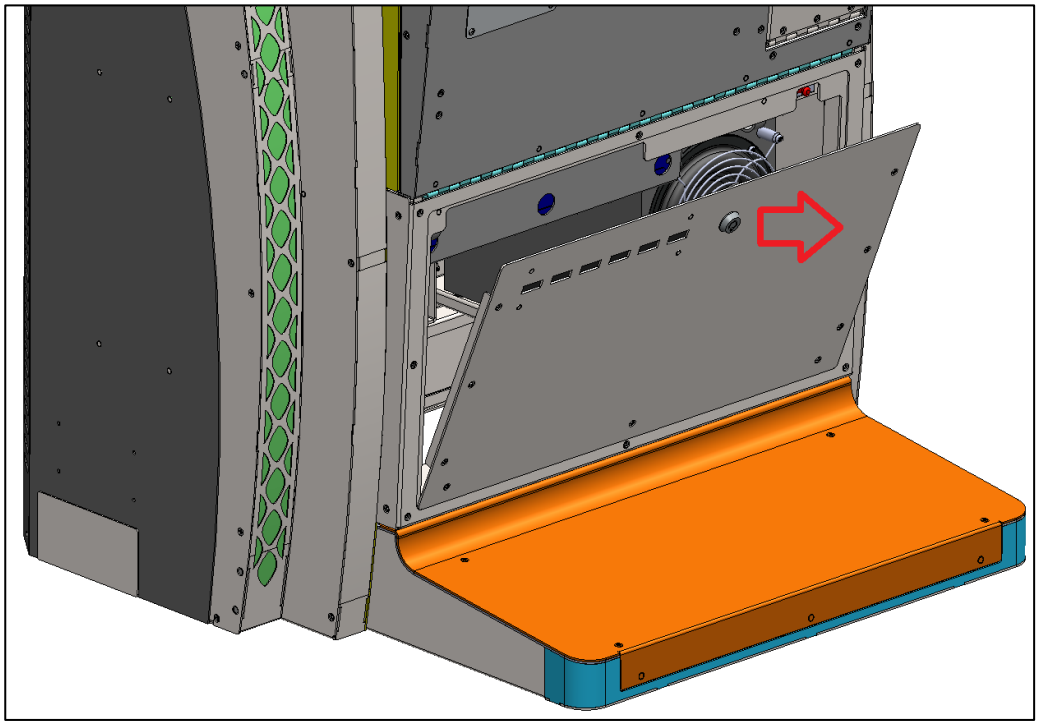
1.5.3. Belly Access Panel

To gain access to the lower section of the cabinet and footrest area, you can easily remove both the belly access panel and the footrest pedestal cover.

To remove the belly access panel, first unlock it.



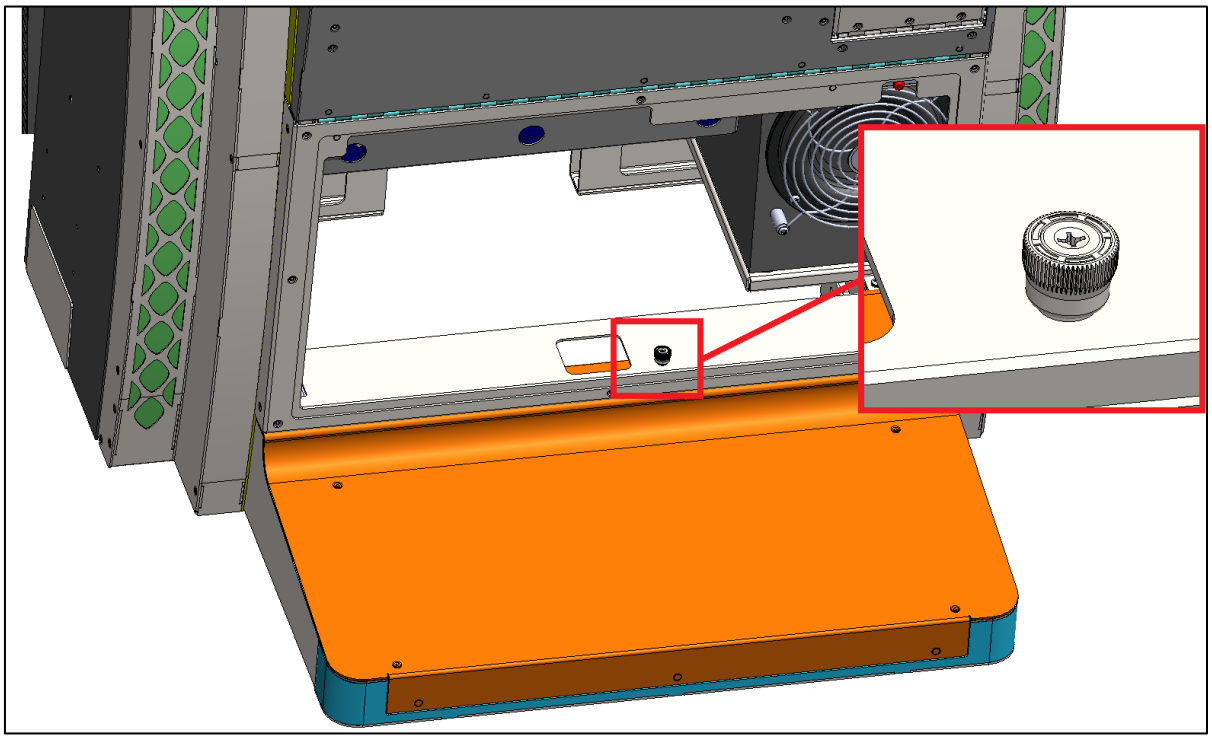
Tilt the panel as shown until you can disengage the tab at the bottom.



1.5.4. Footrest Pedestal Cover

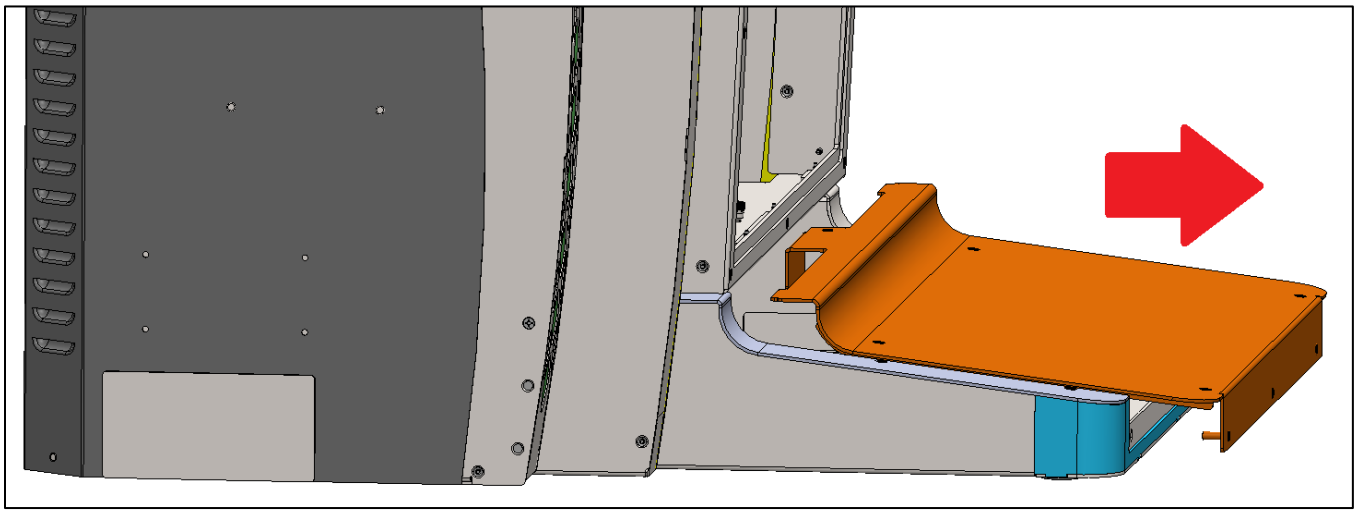
Removing of the footrest pedestal cover will give you access to all the space inside the footrest area.

To remove it, untighten the captive screw shown below.

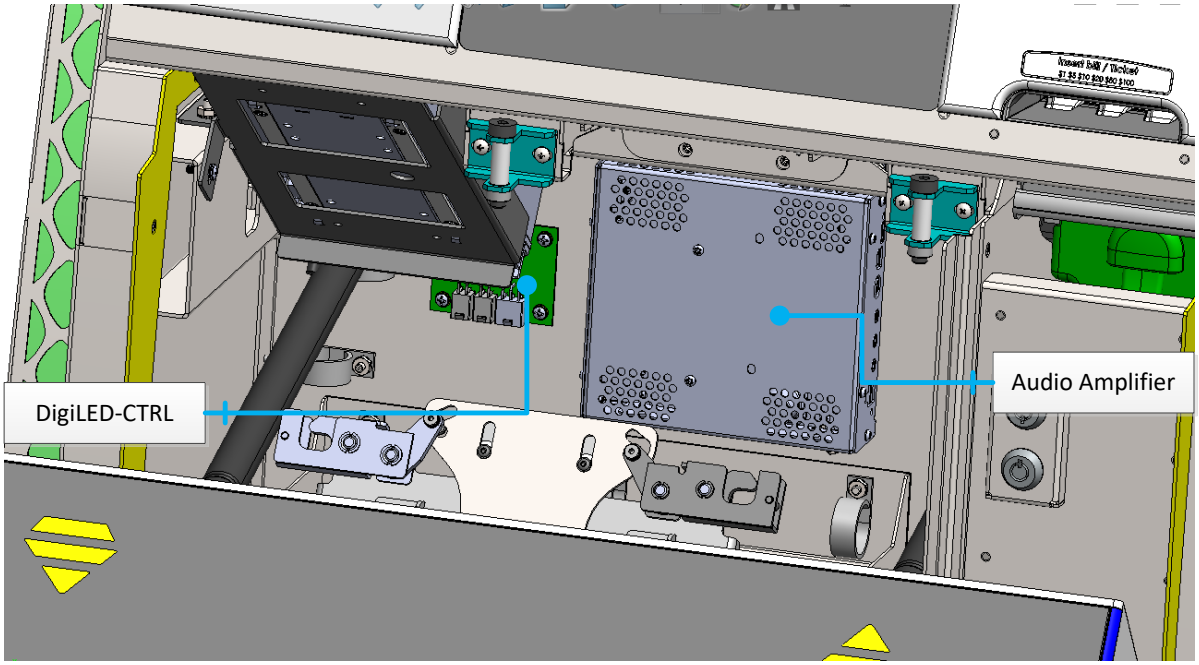


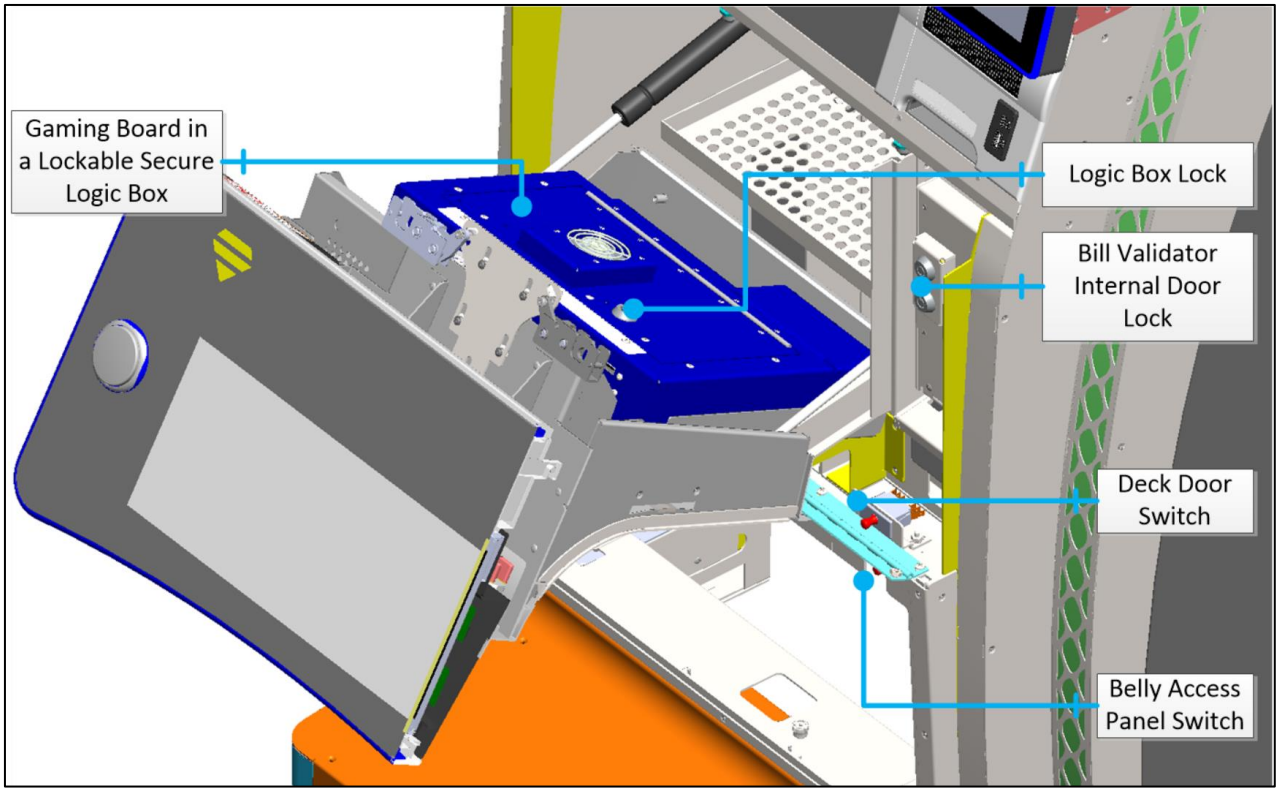
Push on the tab inside toward you.

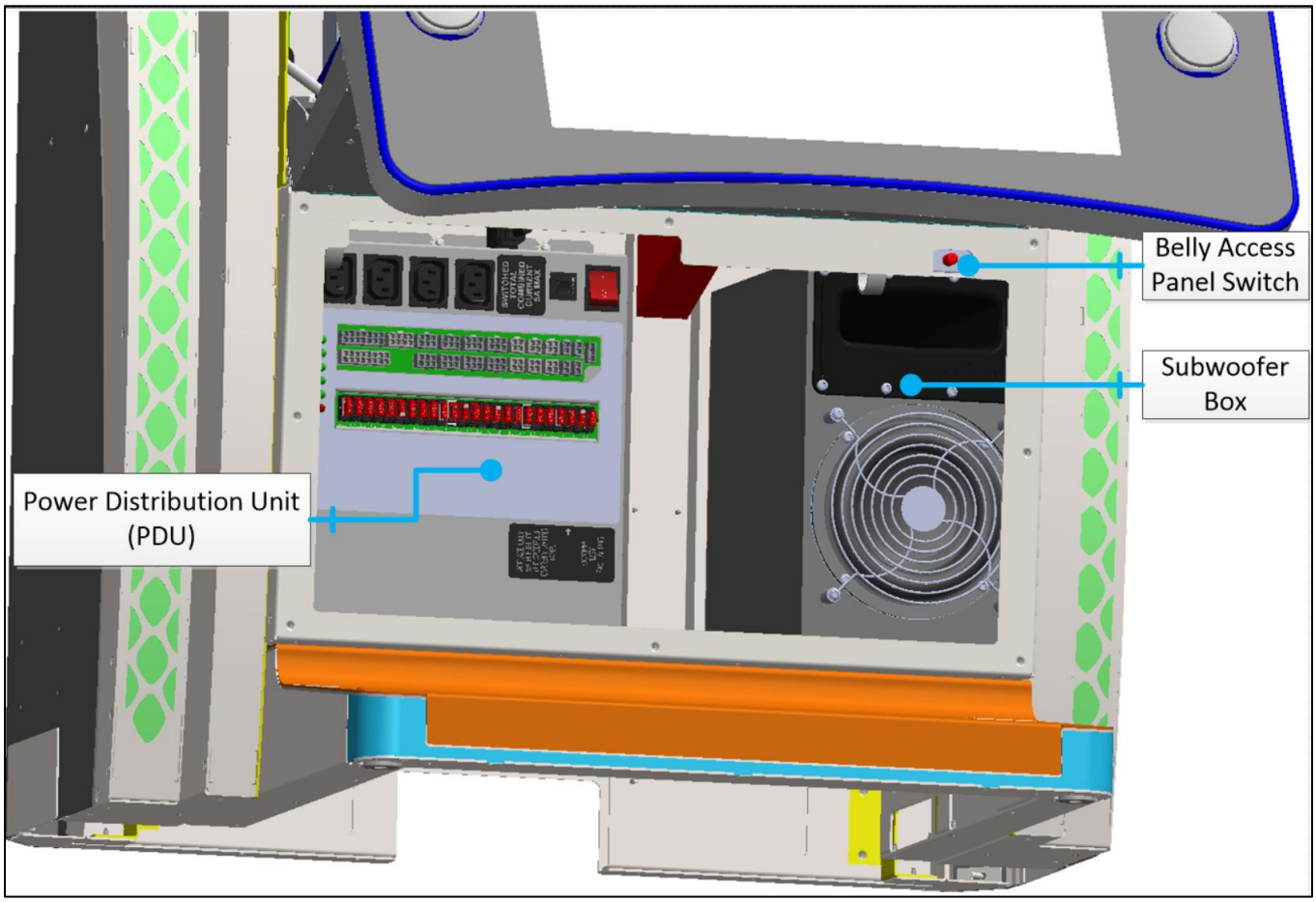
Slide the footrest pedestal cover as shown to remove it.

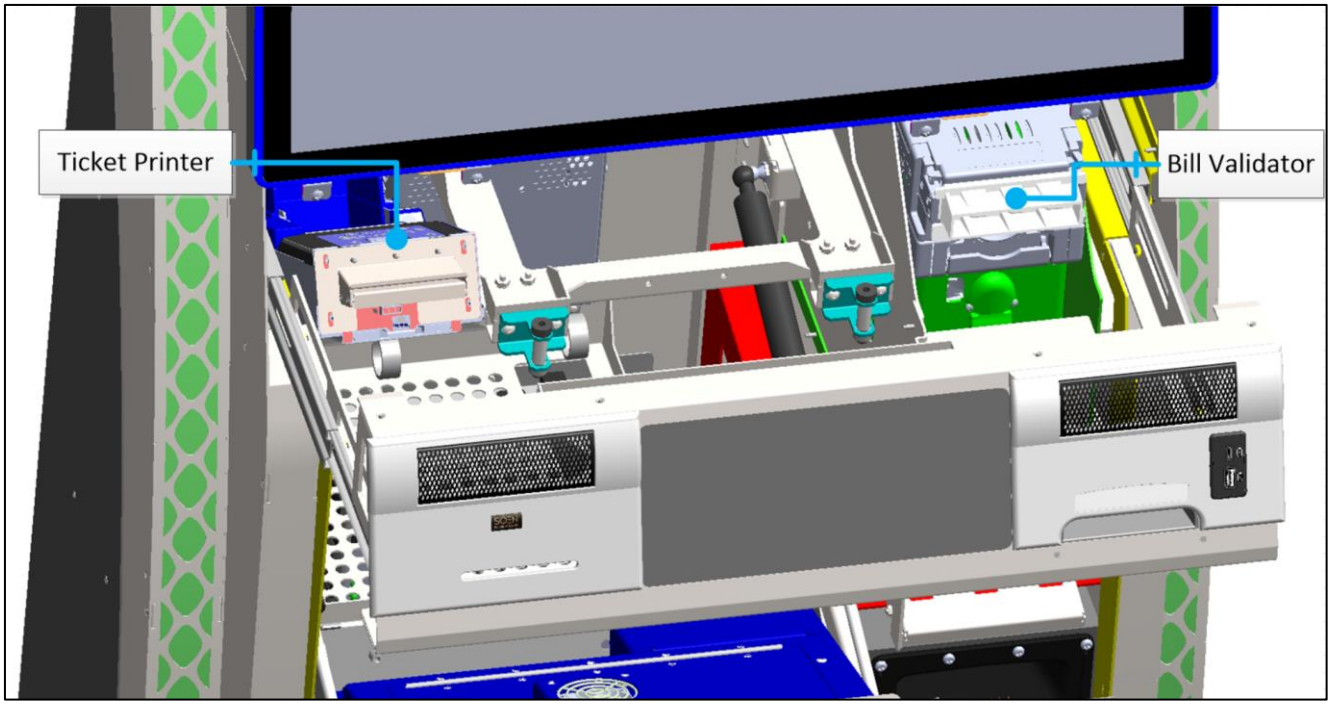


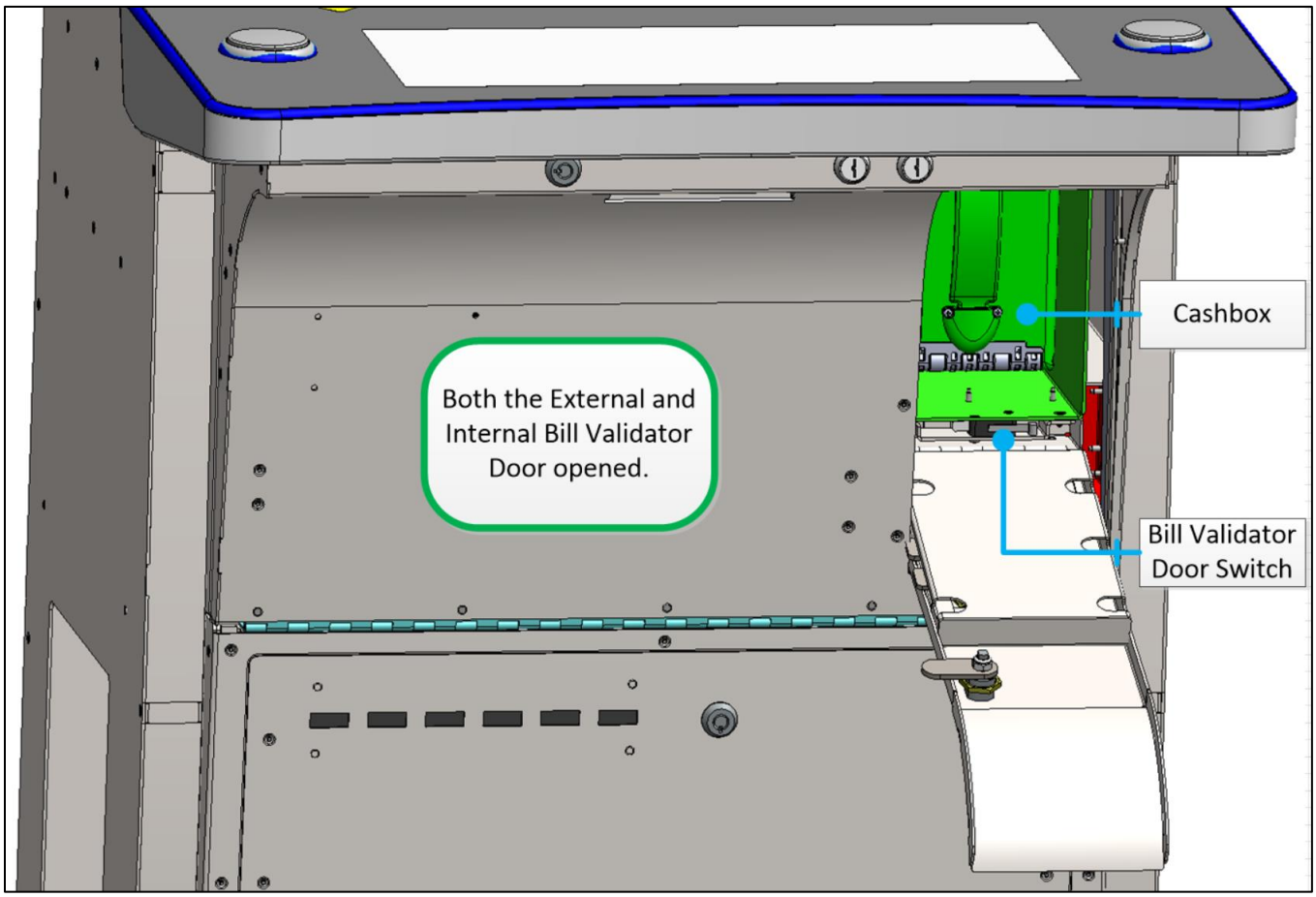
1.6. Inside View of the Machine









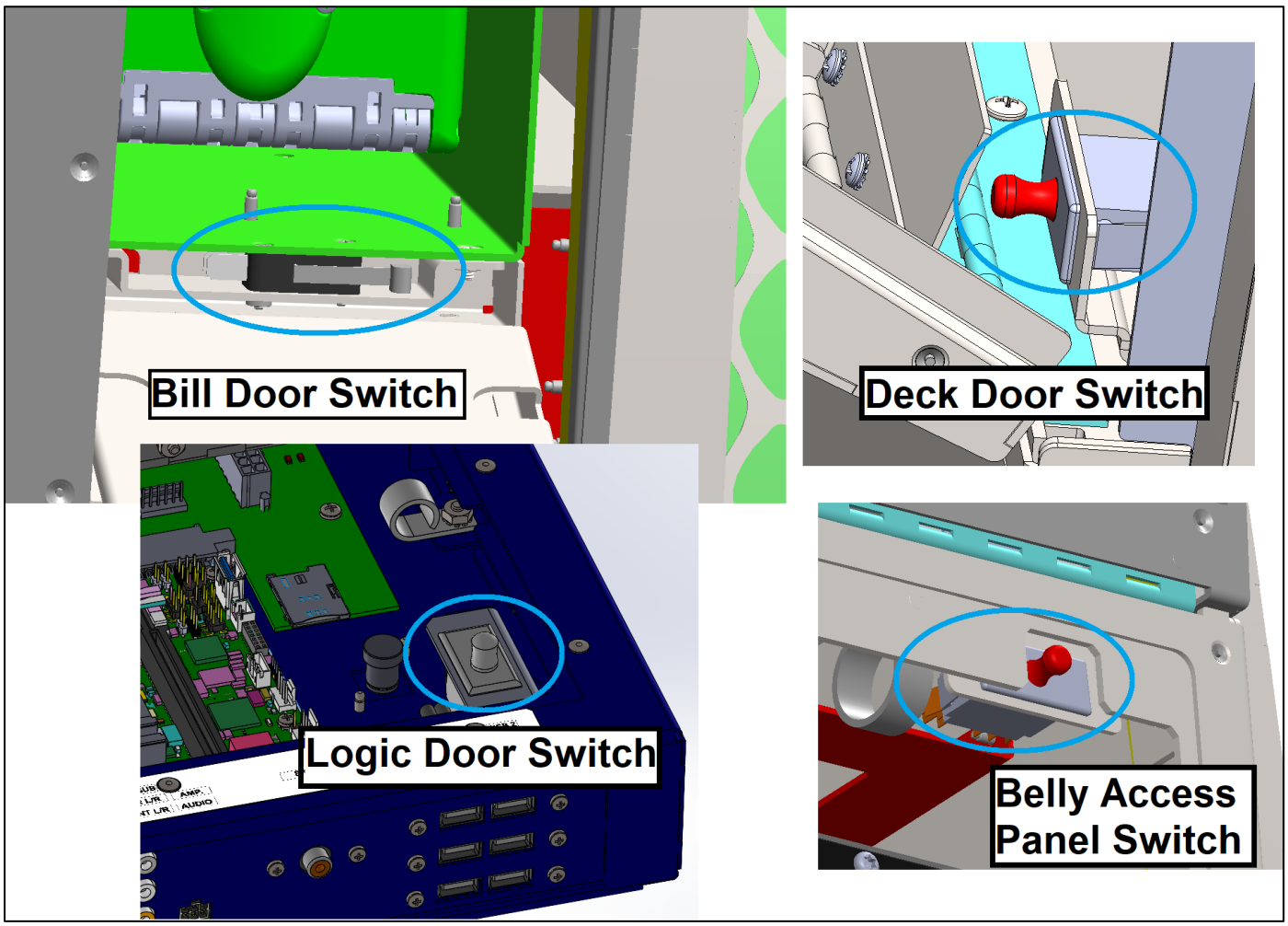


1.7. Door Switches

Four switches detect door opening and closing:

- the deck door switch
- the belly access door switch
- the bill door switch
- the logic door switch

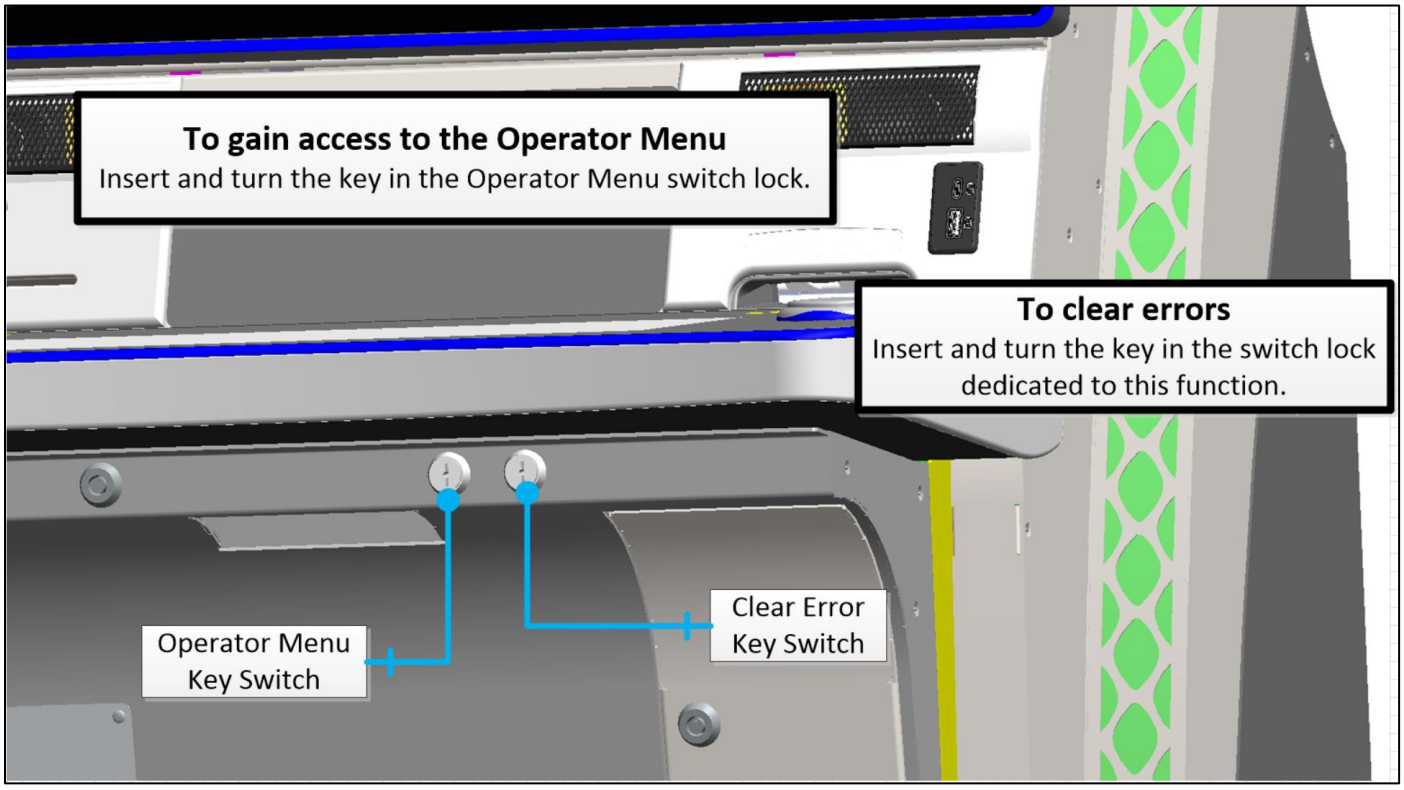
All switches operate in a “normally open” mode. Each time a door is opened, its switch opens the electronic circuit, and this event is created and recorded in the event log kept in the gaming board memory.



1.8. Key Switches

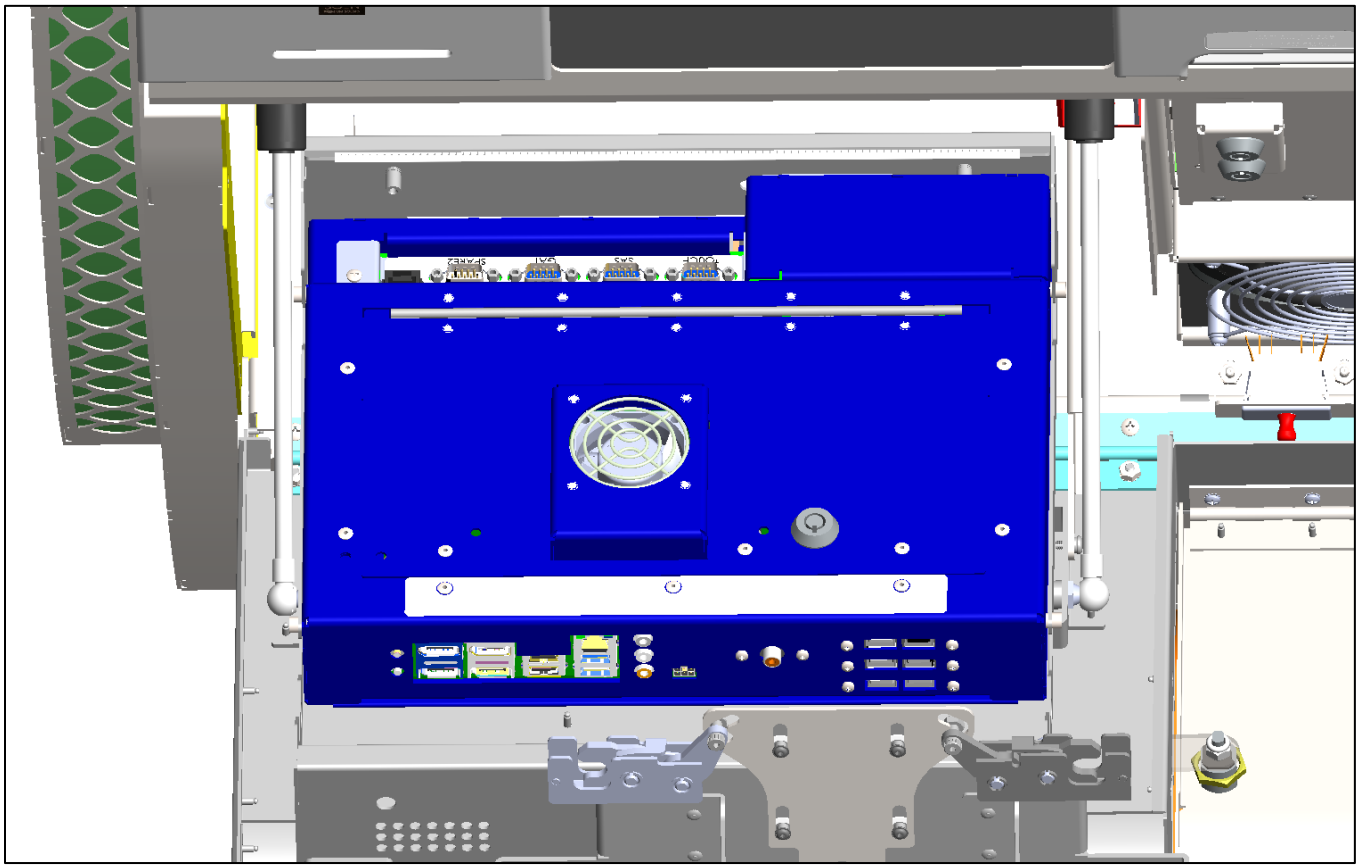
A single key either provides access to the Operator Menu or is used to clear errors, depending on the key switches it is inserted into.

The Operator Menu switch lock gives access to the Operator Menu that allows the configuration of the game, self-diagnostic, statistics, and other options. The Clear Error switch lock allows the operator to clear errors once the problem has been solved.



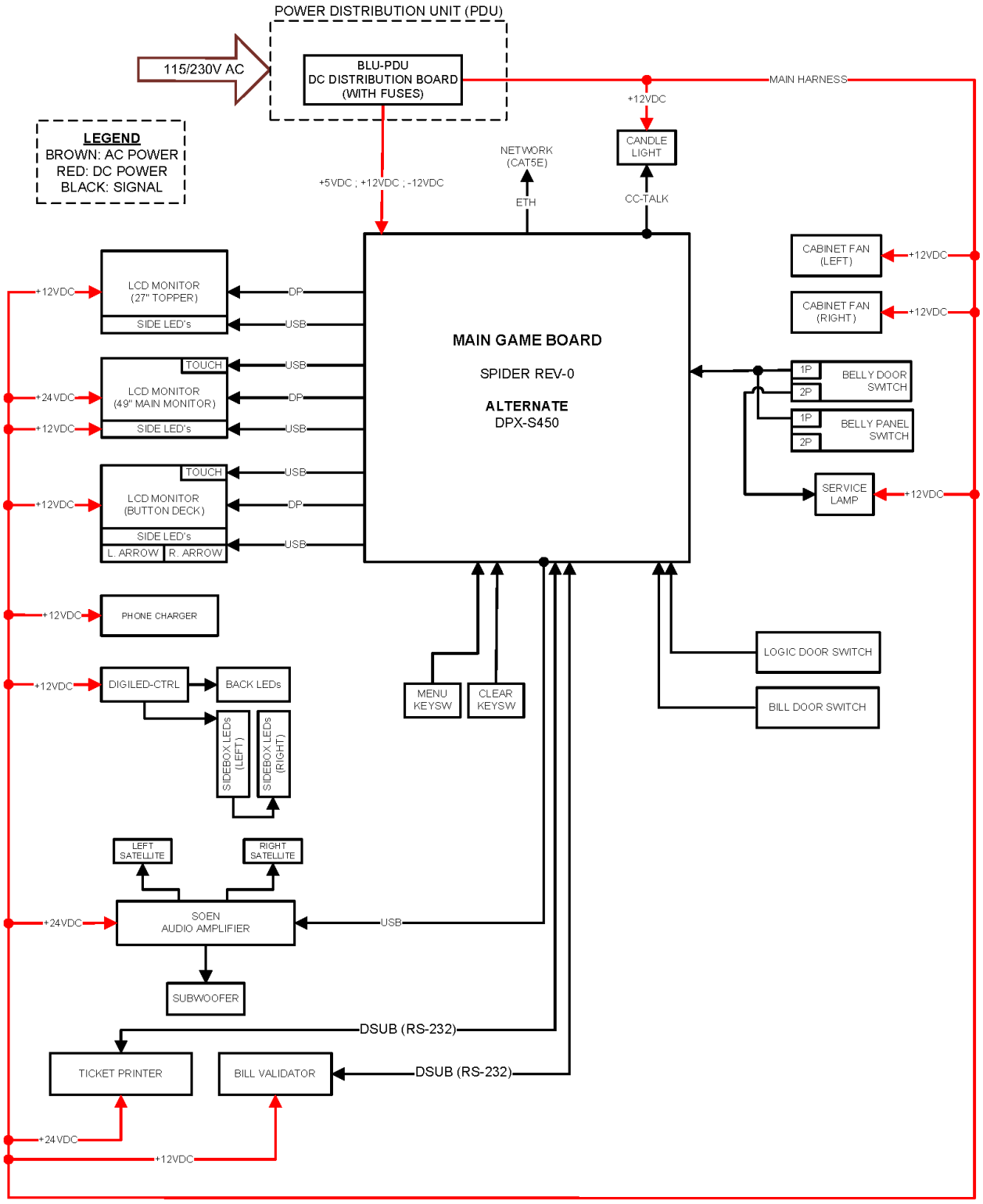
1.9. Logic Box

Gaming board (CPU) slides into a dedicated logic box drawer. A switch detects the opening of the logic box cover. The gaming board reads the state of the logic door switch even when the power is off. The logic box is located inside the deck door, locked with a key, and linked to the machine I/Os through the backplane or through the device connectors.



1.10. Electrical Components

1.10.1. Powering Diagram



1.10.2. List of Electrical Components

Component		QTY	Manufacturer	Model
Power Distribution Unit		1	Agape Technology ACPC Group	ATEC-24V750-PDB
Fan		2	Delta Products Corp.	AUB0912VH-CIT
			Delta Products Corp.	AUB0912VH-CX09
			Delta Products Corp.	AUB0912VH-CF00
			Mechatronics Fan Group	G9225X12B-FGR
			YCCFAN	YDL9225B12G
Gaming board		1	Bluberi Gaming	SPIDER Rev-0
			Bluberi Gaming	DPX-S450 (Dragon)
LCD Monitor (Main Door)		1	Tech Global	TGGT4902J
LCD Monitor (Topper)		1	Tech Global	TGGN2702
LCD Monitor (Deck)		1	Tech Global	TGGT1722
Deal Buttons (Deck)		2	Gamesman	GPB1290ASGGZBABZ-NL
Door switch	Deck Door	1	ZF Electronics	E79-30A0
			C&K	DS2D6CQ1
			E-Switch	PP2-7U1-2B2
	Belly Access Panel	1	ZF Electronics	E79-30A0
			C&K	DS2D6CQ1
			E-Switch	PP2-7U1-2B2
	Bill Door	1	E-Switch	LS0851506F120C2A
			Honeywell	V7-2B17D8-207
	Logic Door	1	ZF Electronics	E69-30A0
			C&K	DS1D6CQ1
Key Switch	Operator Menu	1	Suzo	30-1086-01 (Constant)
	Clear Error (Stat)	1	Suzo	30-1086-00 (Momentary)
Mechanical meter (optional)		5	Suzo	42-08012-07
Candlelight		1	Bluberi	204450
LED Controller		4	Bluberi Gaming	DigiLED-CTRL
Audio Amplifier		1	Soen Audio	S10071
Satellite Speakers		2	Soen Audio	S10072
Subwoofer		1	Soen Audio	S10025

1.11. Gaming Board (CPU)

The cabinet support two versions of CPU gaming board. The Spider CPU and the Advantech DPX-S450 CPU (Dragon).

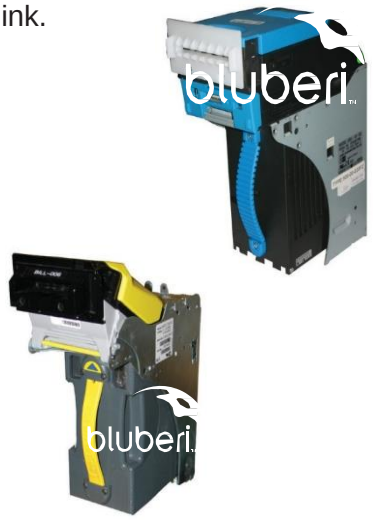
➔ For detailed information on the Spider CPU board, please refer to document “TEC-EL-04103”.

➔ For detailed information on the Advantech DPX-S450 CPU board, please refer to document “TEC-EL-04290”.

1.12. Peripherals

1.12.1. Bill Acceptor

The bill acceptor communicates with the gaming board through an RS-232 link.



MFG	MODEL	VOLTAGE
JCM	UBA (UBA-10-SS)	12 VDC
JCM	UBA PRO (UBA-510-SS)	12 VDC
JCM	iVIZION (iVIZION-100-SS)	12 VDC
MEI	SC ADVANCED SCN6607E	12 VDC
MEI	SC ADVANCED SCM6607E (900 notes)	12 VDC
MEI	SC ADVANCED SCN8347E (CAN)	12 VDC

1.12.2. Ticket Printer

The ticket printer communicates with the gaming board through an RS-232 link.

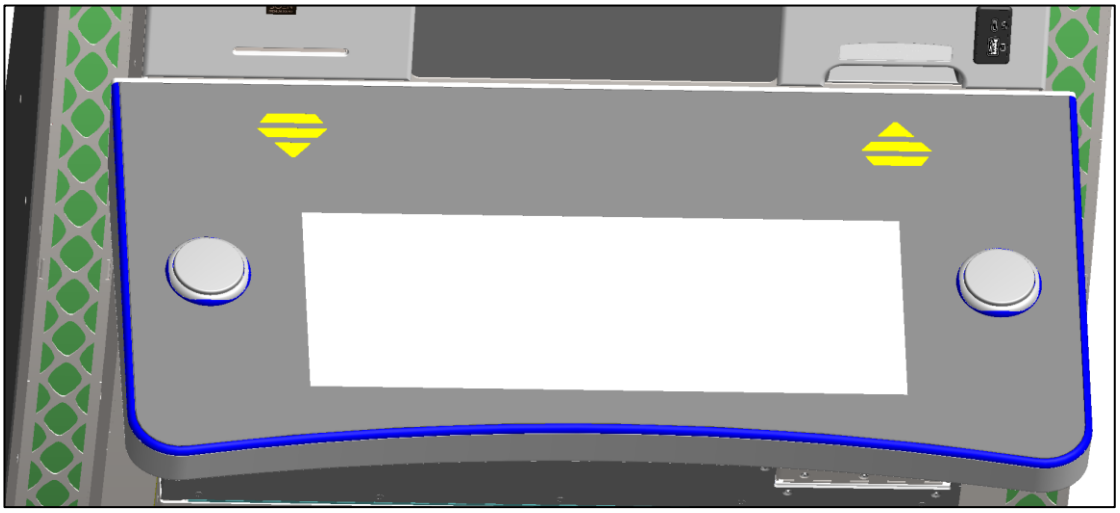
MFG	MODEL	VOLTAGE
Nanoptix	Paycheck 4	24 VDC
JCM	GEN 5	24 VDC
Transact	Epic 950L	24 VDC
Transact	Epic Edge	24 VDC

1.13. Deck LCD Panel

The deck door LCD monitor screen is cut (2/3) from a 16:9 aspect ratio 18.5” LCD. It measures approximately 17 1/8” in diagonal and gives an aspect ratio of 16:6. It is controlled by a DP interface, thus maximizing the visual quality.

Input Power	Video Signal	Aspect Ratio
+12VDC @ 2.41A	1920 × 714 pixels	16:6

The monitor is equipped with a touchscreen communicating with the gaming board through a USB link.



1.14. Main LCD Monitor

The J-Shaped main LCD monitor screen measures 49” in diagonal with 16:9 aspect ratio. It is controlled by a DisplayPort interface, thus maximizing the visual quality.

Input Power	Video Signal	Aspect Ratio
+24VDC @ 4.4A	3840 × 2160 pixels (4K)	16:9

The monitor is equipped with a touchscreen communicating with the gaming board through a USB link.

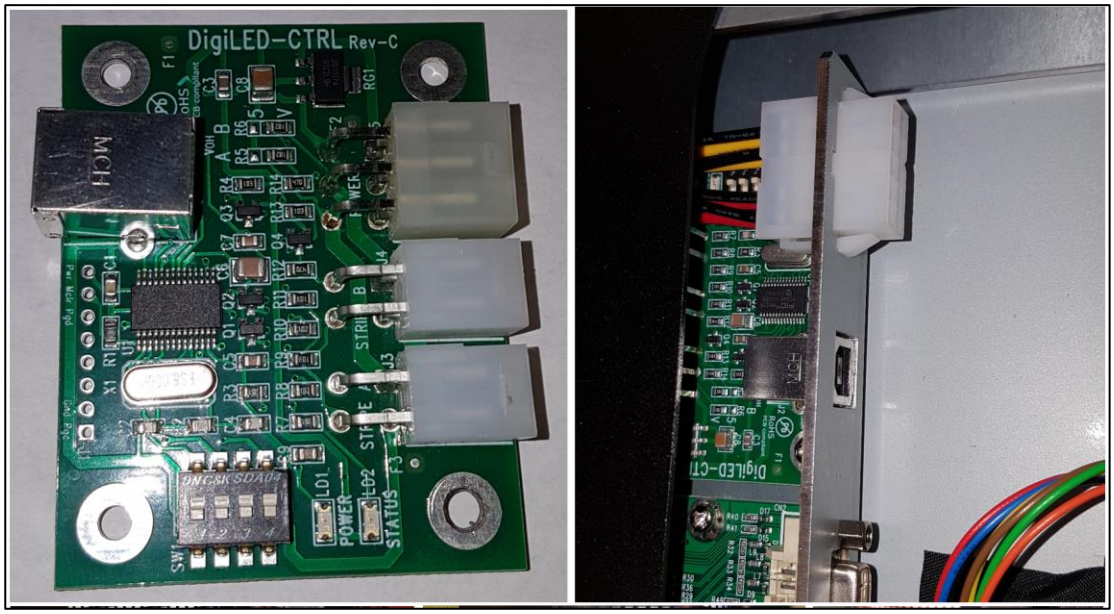
1.15. Topper Monitor

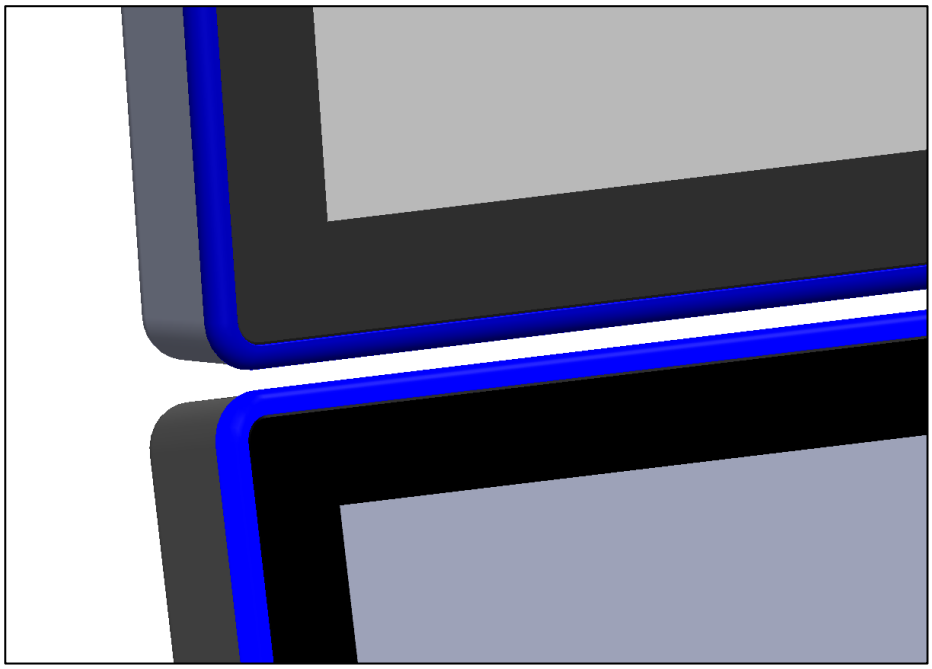
The topper LCD monitor screen measures 27” in diagonal with 16:9 aspect ratio. It is controlled by a DP interface, thus maximizing the visual quality.

Input Power	Video Signal	Aspect Ratio
+12VDC @ 3.9A	1920 × 1080 pixels	16:9

1.16. Monitor Side LED Lighting

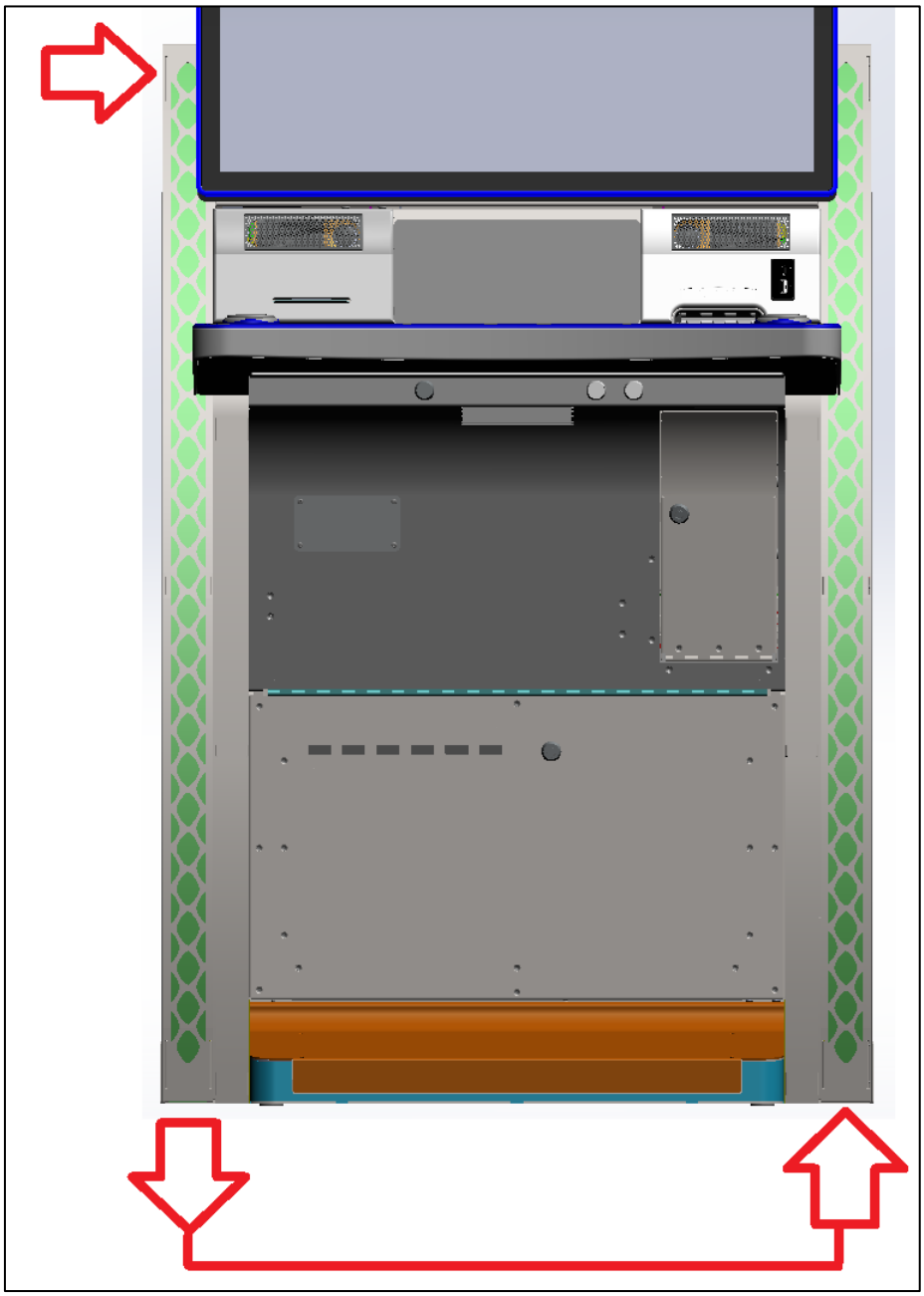
The cabinet features edge mounted digital LED lighting on all LCD monitors. These digital LED are controlled using Bluberi proprietary DigiLED-CTRL controller. This controller is integrated inside each screen subassemblies (there is one controller per screen) and is communicating with the CPU board through an USB link.





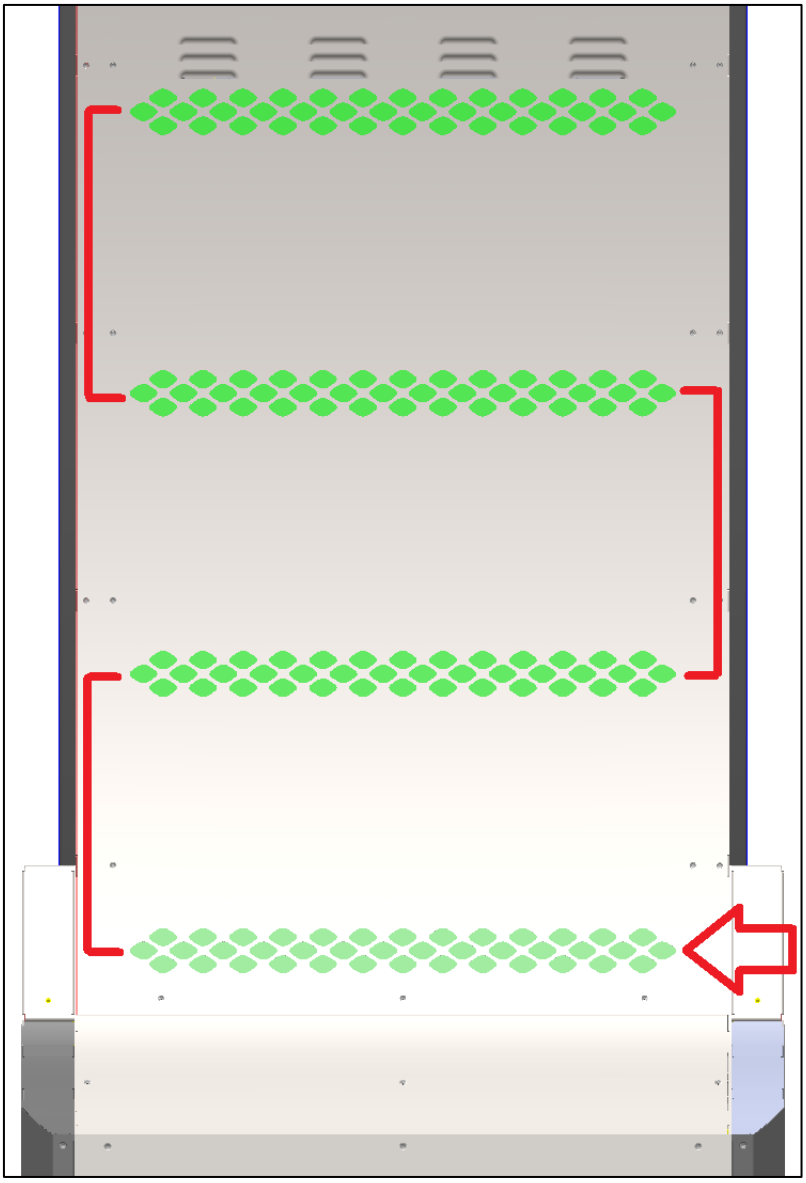
1.17. Side Box LED Lighting

Beacon cabinet features two side box wings with LED lighting on the front. LEDs are controlled using a DigiLED-CTRL controller (CH-A) and working on +12VDC. Both sides are daisy chained and linked together at the bottom. Communication starts on top left corner. It is built using +12V digital LEDs strips with a density of 60 LEDs/meter.



1.18. Cabinet Back LED Lighting

Beacon cabinet features LED lighting on the back. LEDs are controlled using a DigiLED-CTRL controller (CH-B) and working on +12VDC. The four sections are daisy chained as shown. Communication starts on bottom left corner (seen from the front). It is built using +12V digital LEDs strips with a density of 144 LEDs/meter.



1.19. Mechanical Meters (Optional)

Mechanical meters display game data using seven digits:

- Cash IN 1
- Cash Paid 2
- Cash Drop 3
- Cash Won 4
- Cash Played 5

These meters, which cannot be reset, confirm data contained in the gaming board memory. They increment each time a 12 VDC pulse is registered. The hard meters are visible underneath the deck panel.

** An optional Jackpot meter (sixth meter) is available upon request.

1.20. Network

The network connects gaming machines to a server through a Gigabit Ethernet link, making it possible to manage progressives as well as cashless and accounting systems.

1.21. Power Distribution Unit (PDU)

The cabinet is powered using a power distribution unit (PDU) for both AC and DC voltages. PDU integrates the main AC power inlet with an EMI filter, a thermal breaker and the main switch. It also integrates an ATX-style power supply for DC rails power.

Parameter	Min.	Nom.	Max	Unit
Vin (115 VAC)	100	115	132	VACrms
Vin (230 VAC)	200	230	240	VACrms
Vin Frequency	47	-	63	HZ

Output Voltage	Min. Load	Max. Load	Load Reg.	Cross Reg.	Line Reg.	Ripple & Noise
+5V	0.3A	24A	±5%	±5%	±1%	50mVp.p
+12V	0.2A	50A	±5%	±5%	±1%	120mVp.p
+24V	0.2A	15A	±5%	±5%	±1%	160mVp.p
-12V	0A	1A	±10%	±10%	±2%	120mVp.p
+5VSB	0A	3A	±5%	±5%	±1%	50mVp.p

Each component inside the cabinet is powered independently from the power distribution unit. Each segment is fuse protected. To quickly determine whether a fuse is blown, check the LED under it.

LED ON: Fuse is OK
LED OFF: Fuse is blown

Input current is limited to 15A. **Use of an IEC C13 16AWG (SJT) detachable power cord is mandatory for the application.**

PDU DC Section	
CPU Tray (J1)	This output supplies power to the CPU enclosure (CPU board).
Audio (J2)	This output supplies power to the CPU enclosure (expansion power).
Bill +12V (J3)	This output supplies power to the bill acceptor.
Prog. +12V (J4)	This output supplies power to the deck door section (LCD panel, deal push buttons lamp, deck side LED lighting).
Topper +12V (J5)	-- Unused --
Lights +12V (J6)	This output supplies power to the chassis fans & candlelight.
Spare +5V (J7)	This output supplies power to the deck monitor DigiLED & EETI touch controller.
Spare +5V (J8)	This output supplies power to DigiLED controlling side box & cabinet back LED lighting.
Spare +5V (J9)	-- Unused --
Printer +24V (J10)	This output supplies power to the ticket printer.
Audio +24V (J11)	This output supplies +24V power to the audio amplifier board.
CPU Expansion (J12)	This output supplies power to the CPU enclosure (expansion power).
Spare +12V (J13)	This output supplies power to the main screen (49J).
Spare +12V (J14)	This output supplies power to cabinet back LED lighting.
Spare +12V (J15)	This output supplies power to the topper LCD panel.
Spare +12V (J16)	This output supplies power to cabinet side box LED lighting & USB charger.
Spare +5V (J17)	This output supplies power to main screen DigiLED & EETI touch controller.
Spare +5V (J18)	-- Unused --
Spare +5V (J19)	This output supplies power to topper DigiLED.
Spare +24V (J20)	This output supplies power to the main screen LCD panel (49J).
Spare +24V (J21)	-- Unused --
Button +12V (J22)	This output supplies power to the service lamp.

1.21.1. Switched AC Outlets

The power distribution unit (PDU) features four (4) switched AC outputs on IEC 320 C14 outlets. The total combined current for those four outlets is 5A. They will be cycled with the rocker switch.

- **These outlets should only be used by service personnel (max 5A).**

1.21.2. Unswitched AC Outlets

The power distribution unit (PDU) features two (2) unswitched AC outputs on IEC 320 C14 outlets. The total combined current for those two outlets is 5A (5A thermal breaker). Power will be available on those outlets even if the main rocker switch is in off position.

- **These outlets should only be used by service personnel (max 5A).**

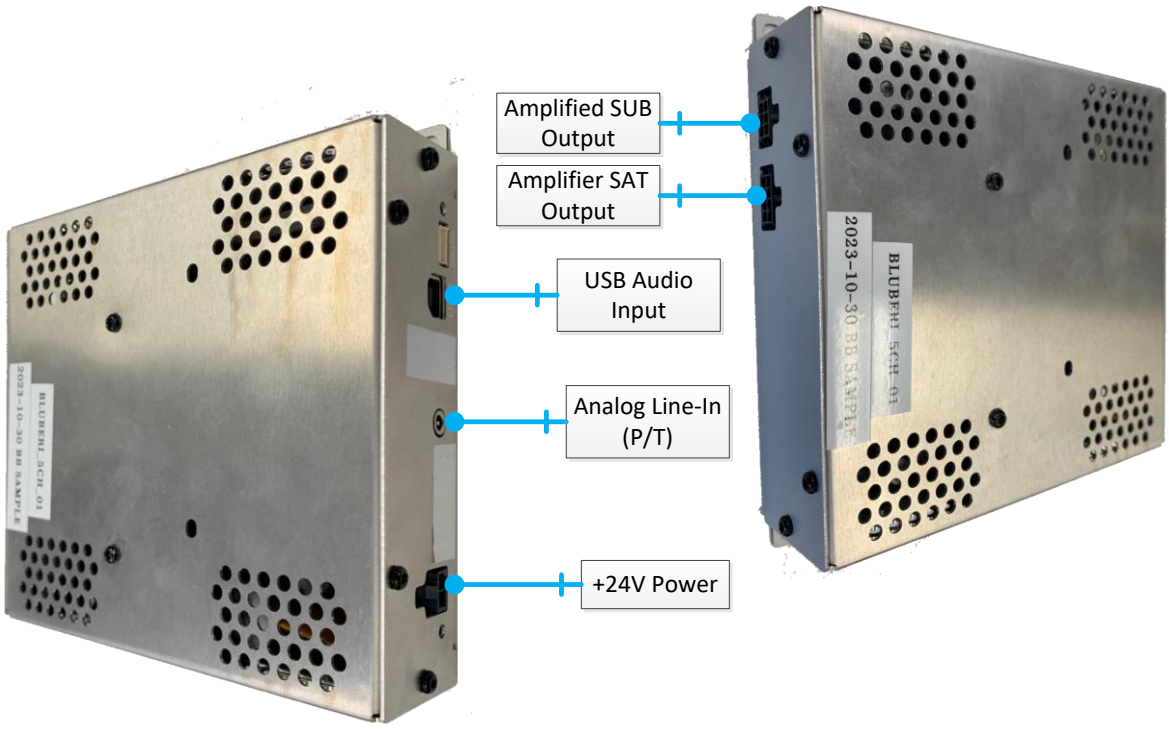
1.21.3. AC Fault Condition

If a fault condition (excessive current) has been detected on one or many AC outlets, the corresponding AC outlets group (switched or unswitched) will be disabled (tripped thermal breaker). Fix faulty condition on AC outlets and push thermal breaker actuator back in.

1.22. Sound Amplifier, Subwoofer and Speakers

The subwoofer and satellite speakers are driven by a Soen 4.1 audio amplifier, a dedicated board amplifying the left and right outputs of the gaming board and adding a special output for a loudspeaker (SUB). This audio amplifier is connected to the main CPU using an USB link (USB audio).

An analog audio input is also available to connect player tracking sound to the main speakers.



1.23. Power Rating

Voltage: 120/240 VAC
Frequency: 60 Hz
Amps: 3.68A @ 120V (1.8A @ 240V)

Use of an IEC C13 16AWG (SJT) detachable power cord is mandatory for the application. Suitable for Indoor Use Only.

1.24. Environmental

1.24.1. Operating

Temperature: 5°C to 40°C
Humidity: 10% to 90% relative humidity (non-condensing)
Altitude: 2,000 meters (6560 ft) max.

1.24.2. Non-operating

Temperature: -25°C to 65°C
Humidity: 0% to 95% relative humidity (non-condensing)
Altitude: 10,670 meters (35,000 ft) max.

1.25. Safety / Agency Approval

- cETLus listed with control number 5019806
- Conforms to UL Std. 22
- Certified to CSA Std. C22.2 No. 60335-1
- Certified to CSA Std. E60335-2-82

1.26. Electromagnetic Compatibility Compliance (EMC)

- Radiated Emissions FCC part 15 (2021) subpart B, Class A -> 30MHz-18GHz
- Conducted Emissions FCC part 15 (2021) subpart B, Class A -> 150kHz-30MHz
- Electrostatic Discharge Immunity (ESD) IEC61000-4-2 (2008) ->

	Level 1	Level 2	Level 3
Contact Discharge	+/-4kV	+/-8kV	+/-10kV
Air Discharge	+/-8kV	+/-15kV	+/-27kV

- Radiated Electromagnetic Field Immunity IEC61000-4-3 (2020) -> 80MHz-3000MHz: 3V/m
- Electrical Fast Transient Immunity IEC61000-4-4 (2012) -> +/-1kV / 5kHz & 100kHz
- Surge Immunity IEC61000-4-5 (2014) A1 (2017) -> +/-2kV L-PE / +/-2kV L-L
- Immunity to Conducted Disturbances, Induced by Radio-Frequency Fields IEC61000-4-6 (2013) -> 3V
- Voltage Dips, Short Interruptions and Voltage Variation Immunity on AC Input IEC61000-4-11 (2020) ->

  Voltage Dips (at 60Hz)

  0%Un during half cycle

  70%Un during 30 cycles

  Short Interruptions (at 60Hz)

  0%Un during 300 cycles

Contact Us

If you have any question, comment or feedback, please use the contact details provided below.

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